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A Manual Flora of Egypt

by

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with a preface

by

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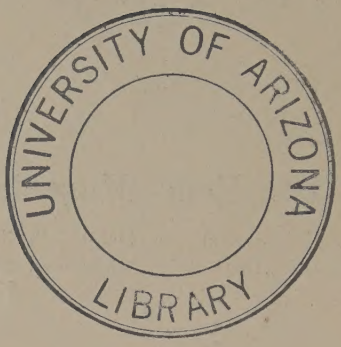

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75. Punicaceae.

Small trees, with regular, hermaphrodite flowers, calyx-tube adherent to ovary, lobes valvate in aestivation; petals 5—7, inserted, with the numerous stamens, on throat of calyx; ovary many-celled, free; style 1; fruit capsular. — An order separated from Myrtaceae by valvate calyx-lobes, and leaves without dots, and from Lythraceae by calyx-tube more or less adherent to ovary.

A small family in Southern-Europe and the Mediterranean region.

370. Punica L.

Calyx woody-coriaceous, top-shaped, lobes 5—7. Petals 5—7, lanceolate, corrugated. Stamens very numerous, in many rows. Ovary with two tiers of cells, the lower consisting of 3, and the upper of 5 ovules attached to the tumid placentae, on the septa and walls. Capsule surrounded by a thick crust, crownded by the persistent, woody calyx-lobes: seeds angular, pulpy; embryo straight, cotyledons spirally convolute. — Large branching shrubs, or small trees, with showy, scarlet blossones.

A small genus or only one species in the Mediterranean region.

964. **Punica Granatum** L. Spec. Plant. I (1753), p. 676. — Boiss. Flor. Or. II, p. 737. — Wight Ill., tab. 97. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 74. — Sickenberg. Contrib. Flor. d'Eg., p. 229. — A small tree or bush, 3—4 m high or sometimes somewhat more, branches opposite or alternate, often thorny. Leaves opposite, alternate or clustered, caducous, oblong lanceolate. — Flow. March to May.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. Cultivated everywhere and often subspontaneous.

Local name: rummân.

Also known from all the other parts of the Mediterranean region and often cultivated in other parts of the globe.

76. Combretaceae.

Flowers generally hermaphrodite. Tube of the calyx adnate to the ovary, constricted above it, or continuous with the limb and then elongate-tubular; limb 4—5-partite (rarely 6—8) generally campanulate; lobes valvate. Petals 0 or 4—5, often small, imbricate or valvate. Stamens 4—5 (or 8—10 in two rows); filaments subulate or filiform, erect, inflexed in aestivation, naked at the base; anthers versatile, dehiscing longitudinally, or adnate and dehiscing by valves. Disk epigynous or 0. Ovary 1-celled; style simple,

filiform, straight or rarely curved; stigma simple, acute, or obtuse, rarely truncate or obscurely lobed. Ovules 1 or 2—6, suspended by a slender funiculus from the top of the cell. Fruit coriaceous chartaceous or drupaceous; putamen crustaceous or bony, angled or sulcate or 2- or 4—5-winged, 1-seeded. Seed pendulous. Albumen 0. Embryo smooth or sulcate; cotyledons convolute or plicate or contortuplicate, often fleshy and oily; radicle small, superior. — Trees or shrubs, often scandent, rarely spinose. Leaves opposite or alternate, rarely verticillate, simple, petiolate, entire. Stipules 0. Flowers in spikes or racemes, less often paniculate or capitate, bracteate.

A considerable Natural Order, confined to the Tropics, but distributed in them round the world.

372. **Terminalia** Linn.

Calyx-tube not produced above the ovary; limb campanulate or urceolate, 5-cleft. Petals none. Stamens 10, longer than the calyx. Style filiform. Ovules 2, rarely 3. Fruit ovoid, terete, angular, compressed or with 2 or 3—5 longitudinal wings. Cotyledons convolute. — Trees or erect shrubs. Leaves alternate or rarely opposite, usually marked with minute pellucid dots, often only visible under a strong lens. Flowers hermaphrodite or polygamous, small, green, white or rarely coloured, sessile in loose spikes, rarely contracted into dense heads, either axillary or clustered on the old nodes. Calyx-tube usually small and narrow, the limb much broader.

The genus extends over nearly the whole range of the Order, but is most abundant in Africa and Asia.

965. **Terminalia glabra** Roxb. Flor. Ind. II (1824), p. 440. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 75. — Leaves oblong, 10 to 20 cm long, 2—5 cm broad, abrupt at both ends, slightly hairy on the veins and short petioles.

N. d. Cairo, often cultivated in gardens, scarcely naturalized.

Also known from India.

A great specimen in the Ezbekîye garden at Cairo, from seeds obtained from Sennar.

77. Myrtaceae.

Calyx-tube adnate to the ovary at the base or up to the insertion of the stamens; limb more or less divided (usually to the base) into 4 or 5, very rarely 3 or more than 5, lobes or teeth, or reduced to a narrow border, or entirely wanting; lobes usually imbricate or open in the bud. Petals usually as many as calyx-

lobes, very much imbricate in the bud, the external one sometimes larger than the others, but usually all nearly equal when expanded, sometimes all concrete and falling off in a single operculum, or rarely entirely wanting. Stamens indefinite, usually numerous or rarely few and definite, inserted in one or several rows on a disk, either thin and lining the calyx-tube above the ovary and forming a thickened ring at its orifice, or thicker and forming a ring close round the summit of the ovary; filaments free or rarely united into a ring or tube at the base, or into as many bundles as there are calyx-lobes; anthers 2-celled, versatile or attached by the base, the cells opening in longitudinal slits, or rarely in terminal pores. Ovary inferior or rarely almost superior, but enclosed in the calyx-tube, sometimes 1-celled, with a placenta attached to the base or adnate to one side, more frequently 2 or more celled, with the placentas in the inner angle of each cell, very rarely 1-celled, with 2 parietal placentas. Style simple, with a small or a capitate or peltate, very rarely lobed stigma. Ovules 2 or more to each placenta, in 2 or more rows, or very rarely solitary, erect pendulous or laterally attached, anatropous or amphitropous. Fruit inferior, adnate to the calyx-tube, and crowned by the persistent limb, or marked by its scar when deciduous, or very rarely half or almost wholly superior, and surrounded at the base by the persistent calyx-tube, either capsular and opening loculicidally at the summit, in as many valves as cells, or indehiscent, dry, and 1-seeded, or succulent and indehiscent. Perfect seeds usually very few or solitary in each cell, even when the ovules are numerous, or rarely numerous and perfect; teeth either thin and membranous, or crustaceous, fleshy or bony. Albumen none or very scanty near the hilum. Embryo straight or variously curved, fleshy, with minute cotyledons at one end, or with large, flat, or variously folded cotyledons, or with thick fleshy distinct or consolidated cotyledons, and an exceedingly short radicle, or rarely apparently homogeneous, the cotyledons inconspicuous before germination. Abortive ovules in many capsular genera, enlarged without being fertilized, and simulating the seeds, but of a hard, nearly homogeneous, woody, or granular consistence. — Trees or shrubs, very rarely undershrubs. Leaves simple, entire or rarely obscurely crenate-toothed, opposite or less frequently alternate, more or less dotted in all but the Lecythideae, with small resinous glands, either pellucid or black and superficial, often scarcely visible when the leaf is thick. Stipules none, or rarely very minute and fugacious. Flowers solitary or in racemes panicles or cymes, axillary or apparently terminal from the terminal bud not growing out till after the flowering is over. Bracts solitary at the base of the peduncles, or forming an imbricate involucre from the abortion of

the lower flowers. Bracteoles 2 at the base of or on the pedicel, sometimes very small or abortive, and often exceedingly deciduous.

The fleshy-fruited genera of the Order are widely spread over the tropical regions both of the New and the Old World, including many of the largest forest trees.

373. **Eucalyptus** Linn.

Calyx-tube obconical campanulate or oblong, adnate to the ovary at the base or rarely to the top, truncate and entire after the falling off of the operculum or with 4 minute teeth; the orifice closed by a hemispherical conical or elongated operculum covering the stamens in the bud and falling off entire when the stamens expand, this operculum usually simple (formed of the concrete petals?), thin or more frequently thick, fleshy or woody, the veins longitudinal, numerous and parallel or rarely anastomosing, the separation from the calyx-tube usually but not always marked in the bud by a distinct line; there is also frequently in the very young bud a very thin membranous external operculum more continuous with the calyx-tube and very rarely this external one persists nearly as long as the internal one and is as thick or nearly so. Stamens numerous, in several series, free or very rarely very shortly united at the base into 4 clusters; anthers versatile or attached at or close to the base, the cells parallel and distinct or divergent and confluent at the apex, opening in longitudinal slits or rarely in terminal pores, the connective often thickened into a small gland either separating the cells or behind them when they are contiguous. Ovary inferior, the summit glabrous, flat, convex or conical, 3—6-celled, with numerous ovules in each cell, in 2—4 rows, on an adnate or oblong and peltate axile placenta; style subulate or rarely almost clavate, with a small truncate capitate or rarely peltate stigma. Fruit consisting of the more or less enlarged truncate calyx-tube enclosing the capsule, usually of a hard and woody texture and interspersed with resinous receptacles, the persistent disk usually thin and lining the orifice of the calyx-tube when the capsule is deeply sunk; concave, horizontal, convex, or conically projecting, and more or less contracting the orifice when the capsule is not much shorter than, as long as, or longer than the calyx-tube; the capsule always adnate to the calyx-tube although often readily separable from it when quite ripe and dry, very rarely protruding from the orifice left by the disk before maturity, but opening at the apex in as many valves as there are cells, which often protrude, especially when acuminate by the persistent and split base of the style. Seeds for the greater part abortive but more or less enlarged, variously shaped and of a hard apparently uniform texture, one or

very few in each cell perfect, usually ovoid or flattened and ovate when solitary, variously shaped and angular when more than one ripen; testa black, dark coloured, or rarely pale, smooth or granular, not hard, in a few species expanded into a variously-shaped wing; hilum ventral or lateral. Embryo with broad cordate 2-lobed or bipartite cotyledons, folded over the straight radicle but otherwise flat. — Shrubs or trees, attaining sometimes a gigantic size, secreting more or less of resinous gums, whence their common appellation of Gum-trees. Leaves in the young saplings of many species, and perhaps all in some species, horizontal, opposite, sessile, and cordate, in the adult shrub or tree of most species vertical (or sometimes horizontal), alternate, petiolate and passing more or less from broadly ovate to lanceolate acuminate and falcate, always rigid whether thick or thin, penniveined, the midrib conspicuous; the primary veins often scarcely perceptible when the leaves are thick; in some species few, irregular, oblique, and anastomosing and passing through every gradation from that to numerous parallel diverging or transverse veins, always converging into an intramarginal vein, either close to or more or less distant from the edge, the intermediate reticulate veinlets rarely very prominent, and scarcely any when the primary veins are closely parallel. Flowers large or small, in umbels or heads, usually pedunculate, rarely reduced to a single sessile flower, the peduncles in most species solitary and axillary or lateral (by the abortion of the floral leaves) either at the base of the year's shoot below the leaves or at the end of the older shoot above them. Bracts and bracteoles when present so early deciduous as only to have been observed in a very few species.

With the exception of two species extending to Timor, and two or three or perhaps one single somewhat doubtful species from the Indian Archipelago, the Eucalypti are all Australian, and constitute a large portion of the forest vegetation.

966. **Eucalyptus robustus** Sm. in Bot. Nov. Holl. (1793), p. 40 tab. 13. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 74. — A moderate-sized tree, with a rough furrowed bark. Leaves ovate-lanceolate, nearly straight or the upper ones narrower and falcate, 8—10 cm long or sometimes more, with numerous fine but prominent parallel veins almost transverse, the intramarginal one very near or close to the edge. Peduncles axillary or lateral, stout, angular or flattened, often 2 cm long, each with about 4—12 rather large flowers, on thick angular pedicels. Calyx-tube narrow-turbinate or slightly urceolate, 6—8 mm long, tapering into the pedicel. Operculum thick, obtusely acuminate, usually rather longer than the calyx-tube. Stamens 8—16 mm long, all fertile, inflexed in the bud, somewhat

raised above the calyx-border by the annular margin of the disk; anthers ovoid-oblong, with distinct parallel cells. Ovary flat-topped or slightly conical in the centre. Fruit ovoid-oblong, truncate, smooth, contracted above the middle, about 1 cm long or rather more, the rim thin and slightly prominent, the capsule much sunk, valves permanently or long coherent, rather narrow. Seeds small. — Flow. February.

M. ma. N. d. N. v. Cultivated often in gardens with *E. globulus*, sometimes naturalized.

Also known from India and Australia.

78. Oenotheraceae.

Calyx-tube adnate to the ovary, entirely so or produced above it; lobes 2—4, rarely 5 or 6, valvate in the bud. Petals as many as calyx-lobes, inserted at the top of the calyx-tube, rarely wanting. Stamens as many or twice as many as petals, or fewer, inserted at the top of the calyx-tube, free (except in a Mexican genus); anthers from ovate to linear, versatile, with parallel cells opening longitudinally. Ovary inferior, more or less completely divided into as many cells as calyx-lobes, or rarely 1-celled; style filiform, or sometimes very short or scarcely any; stigma entire or divided into as many lobes as cells to the ovary. Ovules usually numerous, in 1 or 2 rows in each cell, anatropous, rarely, in genera not Egyptian, solitary. Fruit various, in the Egyptian genera capsular and elongated, opening from the apex downwards in as many valves as cells, or splitting laterally between the ribs of the calyx. Seeds usually small; testa membranous, coriaceous or rarely spongy. Albumen none or exceedingly thin. Embryo usually ovoid; cotyledons plano-convex (except in Trapa), with a very short radicle. — Herbs, annual or perennial, or, in a few genera not Egyptian, shrubs or even trees. Leaves opposite or alternate, without stipules, entire serrate or very rarely divided. Flowers usually solitary in the axils, sometimes forming leafy racemes or spikes at the ends of the branches, often with 2 small bracteoles under the calyx.

The Order is dispersed over nearly the whole surface of the globe.

A. Capsule opening from the summit downwards in 4 valves. Seeds with a tuft of hairs. Stamens 8. Petals 4 . 1. **Epilobium.**

B. Capsule opening laterally between the ribs of the calyx or at the summit inside the calyx. Seeds naked . . 2. **Jussiaea.**

373. Epilobium Linn.

Calyx-tube not at all or scarcely produced above the ovary; lobes 4, deciduous. Petals 4. Stamens 8; anthers linear or oblong.

Ovary inferior, 4-celled, with numerous ovules in each cell; style filiform; stigma entire and club-shaped in the Egyptian species, 4-lobed in some others. Capsule elongated, opening loculicidally in 4 valves from the summit downwards. Seeds small, with a tuft of long hairs at the end. — Herbs, mostly erect, or with a decumbent or creeping base. Leaves opposite or irregularly scattered. Flowers pink or red, rarely white, solitary in the upper axils or forming a terminal raceme.

The genus is diffused over nearly the whole globe—from the extreme Arctic regions of both hemispheres to the tropics. The numerous forms the species assume in every variety of climate make it exceedingly difficult to define them upon any certain principle, and botanists seldom agree as to the number they should admit.

967. **Epilobium hirsutum** L. Spec. Plant. I (1753), p. 494. — Boiss. Flor. Or. II, p. 746. — Ic. Engl. Bot., tab. 838. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76 no. 436. — An annual plant, 60 cm to 1 m high, sometimes more. Villous and glandular-pubescent. Leaves more or less hirsute, oblong-lanceolate to linear-lanceolate, cuspidate, denticulate, clasping, somewhat decurrent. Calyx-lobes lanceolate, aristate; corolla pink, 1,2—1,5 cm broad. — Flow. March to April.

N. d. N. v. Not rare, on the sides of the irrigation Canals. — **O.** Little Oasis; Farâfra; Dakhel.

Local name: nêket-iblîss.

Also known from other parts of the Mediterranean region and Europe.

374. **Jussiaea** Linn.

Calyx-tube not produced above the ovary; lobes 4, 5 or rarely 6, persistent. Petals as many as calyx-lobes. Stamens twice as many as calyx-lobes. Ovary with as many cells as calyx-lobes and numerous ovules in each cell; style short or long or scarcely any; stigma more or less lobed. Capsule terete or with as many or twice as many ribs or angles as calyx-lobes, opening septicidally in valves separating from the persistent ribs or irregularly between the ribs. Seeds usually numerous; testa thin or crustaceous, or thick and spongy. — Herbs, sometimes aquatic, or rarely shrubs. Leaves alternate, entire or very rarely serrate. Flowers yellow or white, solitary in the axils; petals usually broad.

A considerable genus widely distributed throughout Tropical and Subtropical regions.

A. Creeping or floating herb . . . . . 1. **J. repens.**
B. Erect or ascending, not roothing at the nodes . . . 2. **J. linifolia.**

968. (1.) **Jussiaea repens** L. Mant. (1771), p. 381. — Boiss. Flor. Or. I, p. 751. — Ic. Rheed. Mal. II, tab. 51. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76 no. 437. — Sickenberg. Contrib. Flor. d'Eg., p. 230. — Jussiaea diffusa Forsk. Flor. aeg.-arab. Descr., p. 210. — Jussiaea fwartziana DC. Prodrom. III, p. 54. — Jussiaea stolonifera Guill. and Perr. Flor. Seneg., p. 292. — Jussiaea fluitans Hochst. foll. Haw. and Sond. Flor. Cap. II, p. 504. — Jussiaea alternifolia E. Mey. in Hb. Drège. — Creeping or floating herb, copiously rooting, frequently with cylindrical float-vesicles and aërial roots at the nodes, glabrous or pubescent. Leaves varying from linear-oval to lanceolate, obtuse or subacute, entire or obscurely sinuate, 2—6 cm long, narrowed into the petiole of variable length. Flowers pedunculate, usually 5-merous, $^3/_4$—$2^1/_4$ cm in diameter, yellow. Calyx-lobes linear-lanceolate, 5—6 mm. Petals exceeding the lobes. Capsule cylindrical, sulcate, 5—2,5 cm long on a peduncle as long or longer, with a pair of minute bracteoles near the junction. — Flow. March to April.

N. d. Damietta; Abû Shekûk; Damanhur; Benha-el-'Asl; Tanta. — **N. f.** Medînet-el-Fayûm; Tamîa. — **O.** Dakhel.

Local name: forgâ; freykâl; qatîf; meddâd (Ascherson).

Also known from Algeria, Tropical Africa, Syria, Tropical Asia and America.

969. (2.) **Jussiaea linifolia** Vahl. Eclog. Americ. (1807), p. 32. — Jussiaea altissima Guill. and Perr. Flor. Seneg., p. 293. — Jussiaea nubica Hochst. in Herb. Kotsch. Nub. — Erect with a firm but slender woody terete stem, marked with faint decurrent lines or very narrowly alate above, from 15—60 cm or more (3—4 m) in height, usually freely branched above, branches divaricate, wholly glabrous. Leaves linear-lanceolate, narrowed to each end, acute or subacute, entire, 2—6 cm long; petiole variable, frequently narrowly margined to the base. Flowers small, yellow, sessile, 4-merous, often from nearly every axil. Capsule cylindrical or slightly narrowed below, 1—1,5 cm long. Seeds minute, oblong or ellipsoidal, about 1 mm in length. — Flow. February.

N. v. mer. Islands near Aswân (Schweinfurth).

Also in Tropical Africa and America.

79. Halorrhagidaceae.

Calyx-tube adnate to the ovary; lobes 2, 4 or none, or rarely 3. Petals 2, 4 or none, valvate induplicate or slightly imbricate. Stamens 2—8, rarely 1 or 3; filaments short; anthers erect, 2-celled, opening longitudinally. Ovary inferior, flattened or angular, either

2 or 3 or rarely 4-celled, with 1 pendulous ovule in each cell, or 1-celled with 1—4 pendulous ovules; styles as many as ovules, quite distinct, with papillose or plumose stigmas. Fruit inferior, small, indehiscent, with 1—4 cells and seeds or divisible into 2—4 1-seeded indehiscent carpels. Seeds pendulous, with a membranous testa; embryo cylindrical, in the axis of a fleshy albumen; radicle long, superior; cotyledons small. — Herbs, often aquatic, or undershrubs. Leaves opposite, whorled or alternate, without stipules. Flowers small, often unisexual or incomplete, axillary or rarely in terminal corymbs racemes or panicles.

The Order is dispersed over nearly the whole globe.

375. **Myriophyllum** Linn.

Flowers mostly unisexual. Male flower: Calyx-tube very short or scarcely any, lobes short, petal-like or scarcely any. Petals 4, concave, imbricate or half induplicate. Stamens 4, 6 or 8. Styles minute and rudimentary, without any ovules. Female flower: Calyx-tube ovoid, lobes minute or none. Petals usually none. Ovary 2 or 4-celled, with one pendulous ovule in each cell; styles as many as ovules, usually short and stigmatic from the base, often plumose. Fruit small, usually furrowed between the 2 or 4 carpels, which at length separate into as many small 1-seeded nuts. Aquatic herbs, the lower leaves when submerged often pinnately divided into capillary lobes; those of the flowering extremities usually less divided or entire. Flowers very small, in the axils of the exserted flowering leaves or rarely also or entirely in the submerged axils, the upper ones usually males, the lower ones females, sometimes dioecious, but perhaps not constantly so in any species.

The genus is found in fresh waters nearly in every part of the globe.

970. **Myriophyllum spicatum** L. Spec. Plant. I (1753), p. 1410. — Boiss. Flor. Or. I, p. 755. — Ic. Engl. Bot., tab. 83. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76 no. 438. — Sickenberg. Contrib. Flor. d'Eg., p. 230. — Myriophyllum verticillatum Fig. Stud. Scient. sull. Egitto I, p. 221 not. L. — Rootstock perennial, creeping and rooting in the mud under water. Stems ascending to the surface, but usually wholly immersed, varying in length according to the depth of the water, and more or less branched. Leaves whorled, in fours or sometimes in threes or in fives, along the whole length of the stem; the numerous capillary segments entire, 6 to near 10 mm long. From the summit of the branches a slender spike, 5—6 cm long, protrudes from the water, bearing minute flowers arranged in little whorls, and surrounded by small bracts seldom as long as the

flowers themselves. The upper flowers are usually males, their oblong anthers on very short filaments, protruding from the minute calyx and petals. The lower ones are female, very small, succeeded by small, nearly globular or slightly oblong capsules, each separating ultimately into 4 1-seeded carpels. — Flow. February to March.

N. f. Birket-el-Qurûn.

Also known from Europe and Russian Asia, Syria to Persia.

80. Cynomoriaceae.

Parasitic herbs, with polygamous or dioecious flowers, crowded on a club-shaped spadix, with an imperfect or few-lobed perigonium, (ours) a single stamen, a 1-celled ovary containing 1, pendulous ovule, the fruit containing seed which fills the cavity, and a minute lateral embryo, and oleaginous albumen. — Ovary inferior or semi-inferior. Fruit indehiscent, nut-like or somewhat drupe-like.

A small family in the littoral Mediterranean region.

376. **Cynomorium** Micheli.

Flowers polygamous, mixed on the same spike, bracteolate at base. Staminate flowers. Divisions of perigonium 1—5, linear-spathulate; stamen solitary, posterior, with a cylindrical filament, a bilocular anther, the cells bilocellate; rudiment of ovary oblong-club-shaped, fitting into a gooove of the filament. Pistillate flowers. Divisions of perigonium 1—5, half superior, or superior, linear-club-shaped, adnate to ovary. Ovary sessile or somewhat stalked, ending in a grooved style and obtuse stigma, 1-celled, the single ovule suspended by a short funicle from the tip of the cell, hemitropous. Perfect flowers. Few, more or less imperfect, but fertile. Fruit nut-like, pericarp thin, somewhat leathery, connate to the testa. Seed nearly globular, embryo lateral, within the albumen.

A small genus in the littoral Mediterranean region.

971. **Cynomorium coccineum** L. Spec. Plant. I (1753), p. 1875. — Boiss. Flor. Or. I, p. 1072. — Ic. Rich. Mem. Mus. Paris Vol. VIII tab. 21. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 137 no. 955. — A perennial plant 10—20 cm high, or sometimes somewhat more, terete, 1,5 cm thick, clothed with few, deciduous scales, ending in a club-shaped spadix, 2—3 cm thick, and about 10 cm long. Cymes confluent, covering the surface of the spadix; primary bracts peltate, at first imbricated, then remote, at length deciduous; staminate flowers usually sessile in a common receptacle; pistillate and perfect flowers usually in cymes. — Flow. March to April.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr, sand coast and salt marshes of the interior. — **M. p.** Rosetta; Damietta. — **D. i. D. a. sept.** In deep sand, compicous by its thick, crimson spadix.

Local name: mosrûr (Schweinfurth); generally: zibb-el-ard; zubb-el-ard.

Also known from the other littoral places of the Mediterranean region.

Umbelliflorae.

Herbs, shrubs, trees or vines. Leaves alternate or opposite: blades mostly toothed, lobed, divided or compound. Flowers perfect, polygamous or divecious, variously clusteced, but commonly in umbels. Hypanthium present. Calyx of typically 5 relatively small sepals surmounting the hypanthium. Corolla typically of 5 petals. Ondroccium of as many stamens as there are sepals or petals. Gynoecium of 2 united carpels or rarely more, or sometimes 1-carpellary. Ovary inferior, 1-several-celled, sometimes surmounted by a stylopodium. Stigmas terminal or introrse. Fruit drupaceous or baccate, or dry and a cremacarp with smooth or spiny, ribbed or winged carpels.

81. Araliaceae.

Calyx-tube adnate to the ovary; limb forming a slightly raised line or short cup round the summit, truncate or toothed, or quite inconspicuous. Petals 5 or more, or rarely 4, usually valvate and shortly inflected at the tip, and often cohering, rarely with a long inflected point, or obtuse and imbricate, inserted round an epigynous entire disk. Stamens as many as petals or sometimes (in genera not Egyptian) more, inserted with them round the epigynous disk; anthers versatile, with parallel cells opening longitudinally. Ovary inferior. 2 or more celled, or very rarely 1-celled by abortion, with 1 anatropous ovule in each cell, pendulous from the summit. Styles as many as cells, either distinct erect and afterwards recurved with small terminal stigmas, or united in a cone, or reduced to a slight protuberance with as many stigmas as cells radiating on the summit and often scarcely conspicuous. Fruit more or less drupaceous and indehiscent, the epicarp succulent, rarely nearly dry and thin, always distinct from the endocarp, which is hardened into as many 1-seeded pyrenes as cells of the ovary, usually laterally compressed. Seed pendulous, testa very thin, albumen the shape of the pyrene, with an even surface, or rarely ruminate. Embryo minute, near the apex of the seed, the radical superior. — Trees, shrubs, or woody climbers, very rarely (in a few specimens not Egyptian) herbs. Leaves

simple, digitate or pinnately compound, sometimes very large, the rhachis often articulate, the petiole dilated at the base or the dilatations united in an intrapetiolar stipule. Flowers small, often greenish or purple, in umbels heads or rarely racemes, which are usually disposed in large terminal racemes or panicles, the umbels rarely solitary or in compound umbels. Bracts usually small and often inconspicuous or none. Flowers frequently polygamous, the ovary entirely abortive in the males, the stamens often smaller or rarely wanting in the females.

With the exception of a very few species in the temperate regions of the northern and southern hemispheres, the Order is confined to the tropics in the New as well as in the Old World. — Generally speaking, Araliaceae differ from Umbelliferae by their tall shrubby or arborescent habit, large leaves, paniculate inflorescence, valvate petals, entire disk and drupaceous fruits, but every one of these characters breaks down in some exceptional case, and some have proposed to unite the two Orders.

377. **Hedera** Linn.

Calyx-border slightly prominent, entire or sinuate-toothed. Petals 5, valvate. Stamens 5. Disk convex, sometimes very prominent. Ovary 5-celled. Styles united into an obtuse cone or very short cylindrical style, with 5 scarcely prominent stigmas. Fruit nearly globular, with 5 1-seeded pyrenes. Seed with a furrowed or ruminated albumen. — Woody climbers or trees. Leaves entire, lobed or pinnately compound. Flowers umbellate, not articulate on the pedicel, the umbels pedunculate on terminal panicles.

A small genus, containing only a single Australian species besides the following one.

972. **Hedera Helix** L. Spec. Plant. I (1753), p. 290. — Boiss. Flor. Or. I, p. 1090. — Ic. Engl. Bot. tab. 1267. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82. — A woody, evergreen climber; when wild the lower, slender branches spread along the ground, with small leaves, whilst the main stems climb up trees, rocks, or buildings to a great height, adhering by means of small rootlike excrescences. Leaves thick and shining, ovate, angular, or 3- or 5-lobed; those of the barren stems usually much more divided than the upper ones. Flowering branches bushy, projecting a foot or two from the climbing stems, each bearing a short raceme or panicle of nearly globular umbels. Flowers of a yellowish-green. Borders of the calyx entire, scarcely prominent, about half-way up the ovary. Petals 5, broad and short. Stamens 5. Styles united into a single very short one. Berry smooth and black, with from 2—5 seeds, the albumen deeply wrinkled.

M. ma. M. p. N. d. N. f. N. v. Cultivated often in gardens and scarcely naturalized.

Common in Western and Southern Europe, the other places of Northern Africa, and in Japan.

82. Umbelliferae.

Calyx-tube wholly adnate to the ovary; calyx-teeth 5, often reduced so as to leave a raised line at the top of the tube, or obsolete. Petals 5, inserted at the top of the calyx-tube and alternating with its teeth, usually inflected at the tip, with impressed midrib and emarginate, sometimes unequal; connivent or somewhat imbricated in bud, rarely valvate. Stamens 5, inserted at the top of the calyx-tube, and alternating with the petals, glabrous; filaments slender, distinct, inflected in bud; anthers versatile, with 2 parallel cells dehiscing longitudinally. Ovary 2-celled; styles 2 (in abnormal flowers occasionally 3), simple, glabrous, erect when young, diverging afterwards, usually persistent, often dilated at the base (stylopods), distinct from or confluent with an epigynous usually 2-lobed disk, which is placed interior to the stamens. Fruit 2-celled, glabrous or covered with various kinds of hair, usually separating into 2 indehiscent 1-seeded mericarps which are attached near the apex of their faces (or adjacent sides) to a central axis (carpophore), which usually splits and allows the mericarps to separate from their medial plane or commissure, or occasionally remains undivided. In some cases the carpophore is absent, and the fruit remains united at the commissure. The mericarps are usually marked by five longitudinal lines (primary ridges), 2 of which are lateral, corresponding to the external sides of the commissure, 1 dorsal at the middle of the back, and 2 intermediate. Sometimes 4 more lines (secondary ridges) appear on the mericarp alternating with the primary ridges, and even in some genera are more prominent than the latter. The primary ridges are not always equally developed, frequently the lateral ones are dilated into wings, and occasionally the dorsal one, while the rest remain less prominent. In most genera there are longitudinal lines (vittae), receptacles of aromatic or pungent resinous oil, either solitary or a few together inside, or interior to the pericarp alternating with the primary ridges, and also some on the commissural faces. Seeds pendulous from the point of attachment to the carpophore. Testa thin; albumen hard; embryo, minute, near the apex of the seed, straight; radicle superior. — Herbs, rarely shrubs, very rarely trees, annual, biennial, or perennial. Leaves alternate or rarely subopposite, frequently decompound, usually membranous; petioles sheathing or amplexicaul at

the base, and usually without separate stipules. Flowers often polygamous, arranged in terminal or lateral, simple or compound umbels, which in some cases are reduced to capitula. Bracts and bracteoles usually present, forming respectively the involucres and involucels.

A numerous family, more or less represented nearly all over the globe; but the species are comparatively few in high northern latitudes, as well as within the tropics, their great centre being western Asia and the Mediterranean region. Their inflorescence, and the structure of their flowers, distinguish them at once from all other families, except that of the Aralias, and these have either more than 2 styles, or the fruit is a berry. But the subdivision of Umbellifers into genera is much more difficult. Linnaeus marked out several which were natural, but without definite characters to distinguish them; and the modern genera, founded upon a nice appreciation of minute differences in the fruit and seed, are often very artificial, or still more frequently reduced to single species, and as artificial as those of Cruciferae and Compositae. These minute characters are moreover in many cases very difficult to ascertain. I have, therefore, in the following analytical key, endeavoured to lead to the determination of the species, as far as possible, by more salient though less obsolute characters, which may suffice in a great measure for the few Egiptian species, although, even for them, the minute variations of the fruit cannot be wholly dispensed with. For this purpose it is essential to have the fruit quite ripe. Is must then be cut across, and if a horizontal slice is placed under a lens, the general form, the ribs and furrows of the pericarp, and the vittae, will clearly appear. When the fruit is described as laterally compressed, this slice is of an oval form, the division between the carpels being across the narrow diameter; where it is flattened from front to back, (dorsally) the division is across the broadest diameter. In some other genera, where the fruit is not compressed, the horizontal slice is orbicular. Where the albumen is furrowed, its transverse section assumes a more or less half-moon or kidney shape.

A. Umbels simple.
Saniculeae: Fruit terete or flattened laterally or dorsally.
I. All the flowers sessile . . . . . 1. **Eryngium.**
II. All the flowers peduncled . . . . . 2. **Sanicula.**

B. Umbels compound.
I. Primary ribs only prominent (except in Ammineae, Coriandrum). Vittae rarely wanting in the intervals.
a) Fruit (except in few Smyrneae) flattened laterally.
1. *Smyrneae:* Fruit nearly globular, broad-ovate, oblong-linear, or twin, rarely terete

or slightly flattened at the back. (Secondary ribs visible in Coriandrum). Inner surface of the albumen deeply grooved, rarely concave . . . . . 3. **Coriandrum.**

2. *Ammineae:* Fruit ovate, oblong, or twin, rarely short-linear. Secondary ribs visible. Inner surface of the albumen flat, rarely concave.

α) Petals entire, retuse or dentate, with inflexed tip, yellow or white.

† Plants with leaves.

* Leaves undivided . . . . . 4. **Bupleurum.**

** Leaves pinnate.

Δ Flowers white.

□ Segments cuneate-lobed . . . . . 5. **Apium.**

□□ Segments ovate . . 6. **Helosciadium.**

ΔΔ Flowers greenish or reddish-yellow . . . . . 7. **Petroselinum.**

†† Leafless plants . . . . . 8. **Pithyranthus.**

β) Petals notched or 2-lobed, with strap-shaped, inflexed tip, white or yellowish.

† Leaves dissected.

* Ribs prominent . . . . . 9. **Carum.**

** Ribs filiform.

Δ Leaves dissected into capillary lobes . . . . . 10. **Ammi.**

ΔΔ Leaves dissected into oblong lobes . . . . . 11. **Berula.**

†† Leaves undivided; ribs nearly obsolete . . . . . 12. **Pimpinella.**

3. *Scandicineae.* — Fruit linear, usually beaked, rarely oblong. Inner face of the albumen grooved, rarely concave.

α) Styles longer than the stylopodia.

† Annual; fruit long-beaked . . . 13. **Scandix.**

†† Biennials or perennials; fruit linear or oblong . . . . . 14. **Chaerophyllum.**

β) Styles short . . . . . 15. **Anthriscus.**

b) Fruit flattened dorsally, more or less convex or terete.

1. *Seselineae:* Fruit terete or nearly so. Inner face of the albumen flat or con-

cave. Lateral ribs distinct, or united into a thickened but not dilated margin.

α) Calyx-margin tumid . . . . . 16. **Foeniculum.**

β) Calyx-margin obsolete . . . . . 17. **Crithmum.**

2. *Peucedaneae:* Fruit ovate lenticular, or oblong-elliptical, flattened. Secondary ribs 0. Inner face of the albumen flat or concave. Lateral ribs dilated into a wing, or broad, tumid margin.

α) Ribs, or at least the intermediate ones, nearly equidistant.

† Margin usually not thickened.

* Fruit-margin cuticularized . . 18. **Docrosia.**

** Fruit-margin not cuticularized 19. **Ferula.**

†† Margin usually pithy, more or less thickened.

* Fruit lenticular . . . . . 20. **Anethum.**

** Fruit round . . . . . 21. **Tordylium.**

β) Lateral ribs more or less distant from the intermediate. Inner margin pellucid, outer, tumid, pithy.

† Flowers white . . . . . 22. **Zogimia.**

†† Flowers yellow . . . . . 23. **Malabaila.**

II. Intervals over the vittae thickened or furnished with secondary ribs. *Caucalineae:* Fruit nearly cylindrical, or flattened latterally, or dorsally. The primary and secondary ribs terminating in lobed crests, or bristles, or prickles, or rarely entire; the secondary more prominent them the primary.

a) Fruit oblong.

1. Secondary ribs with 1—3 rows of triangular-setaceous prickles . . . . . 24. **Orlaya.**

2. Secondary ribs with 1 row of subulate prickless.

α) Secondary ribs ciliate . . . . . 25. **Ammodaucus.**

β) Secondary ribs not ciliate . . . . . 26. **Daucus.**

3. Secondary ribs concealed by numerous prickles occupying the whole interval . 27. **Torilis.**

b) Fruit oblong-elliptical or linear-oblong . . 28. **Caucalis.**

c) Fruit fusiform; secondary ribs setulose . . 29. **Cuminum.**

378. (1.) **Eryngium** Linn.

Calyx-lobes rigid, acute or pungent-pointed. Petals erect, with reduplicate or recurved margins and a long induplicate point, scarcely imbricate in the bud. Disk with a thick raised margin encircling the styles. Fruit obovoid or ovoid, scarcely compressed, the ribs inconspicuous, without vittae. Carpophore deciduous. — Herbs with prickly leaves and involucres. Flowers in compact spikes or heads, with a bract under each flower, the outer ones and sometimes some of the inner ones much longer than the flowers, rigid and pungent-pointed. Calyx-tube covered with transparent, acuminate or obtuse, flat or vesicular scales.

The genus is spread over the greater part of the warm and temperate regions of the globe, the species most abundant and most varied in S. America.

A. Paleae entire . . . . . 1. **E. campestre.**
B. All the paleae tricuspid . . . . . 2. **E. creticum.**

973. **Eryngium campestre** L. Spec. Plant. I (1753), p. 337. — Boiss. Flor. Or. II, p. 824. — Rchbch. Ic. XXI, tab. 11. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 79 no. 457. — Sickenberg. Contrib. Flor. d'Eg., p. 239. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 648 no. 129. — A perennial herb, 35—50 cm high, often somewhat more, glaucous-green, corymbose above. Leaves coriaceous, the radical ones ovate in outline, 3—5-palmatisect, with decurrent, pinnatisect, prickly-toothed or incised, more or less overlapping segments, the stem-leaves auricled-clasping, 2-pinnatisect, prickly-toothed. Involucre-leaves 5—7, linear to linear-lanceolate, subulate, 2—4-prickly at the base, twice to twice and a half as long as the 1,2 to 1,5 cm long head. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Abusîr; Alexandria-West and -East to Abukîr. — In great luxuriance, everywhere on the clayey and gravelly plains.

Local name: shaqâqîl (Forsk.); fuggê' (Schweinfurth).

Also known from Tunisia, Algeria, Tripolitania, Middle- and Southern Europe and Asia Minor.

974. **Eryngium creticum** Lam. Dict. IV (1797), p. 754. — Boiss. Flor. Or. II, p. 827. — Rchbch. Ic. XXI, fig. 1850. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 79 no. 458. — Sickenberg. Contrib. Flor. d'Eg., p. 239. — Eryngium cyaneum Sibth. and Smith Flor. Graec., tab. 258. — Eryngium syriacum Moris., Sect. 7 tab. 37 fig. 13. — Eryngium coeruleum montis Libani Munting. Phyt., tab. 127. — A perennial herb, 30—50 cm high or somewhat more, blue, divaricately much branched, corymbose. Root-leaves soon withering, long-

petioled, oblong in outline, bipinnatipartite, with cut-toothed, prickly segments; the stem-leaves sessile, 3—8-palmatipartite into lanceolate-linear, cut-toothed, prickly divisions. Involucre leaves 5, linear-subulate, with 2 prickles at the base, and sometimes others along the margins, 3—4 times as long as the 8 mm long heads. — Flow. March to April.

M. ma. Alexandria. — **M. p.** El-ʿArîsh; Karsaʿneh.

Local name: fuggêʾ.

Also known from Southern Europe and Syria.

379. (2.) **Sanicula** Linn.

Calyx-teeth herbaceous, persistent, lanceolate. Petals erect, emarginate, inflexed with a long acuminate point, 1-veined, slightly imbricated in aestivation. Disk flat. Fruit ovoid, somewhat compressed laterally, with wide commissure, echinate with long prickles hooked at the end; ridges imperceptible; vittae 10, opposite the usual places for primary ridges; carpophore 0. Seeds semi-terete. — Perennial erect slender herbs. Leaves palmately divided with serrate mucronate obovate segments. Umbels irregularly compound, terminal; heads small; bracts narrow. Flowers usually monoecious, the outer flowers stalked and male, the inner ones subsessile and female.

A genus of very few species, but widely spread over a great part of the globe without the tropics. They are all readily distinguished among irregular Umbelliferae by their burr-like fruit.

975. **Sanicula europaea** L. Spec. Plant. I (1753), p. 339. — Boiss. Flor. Or. II, p. 832. — Rchbch. Ic. XXI, fig. 1847. — Root-stock short, almost woody. Radical leaves on long stalks, 2—5 cm diameter, deeply divided into about 5 palmate segments or lobes, each one obovate or wedge-shaped, dentate or lobed, the teeth ending in a fine point, and often ciliate at the edge; the whole plant otherwise glabrous. Stems 30—75 cm high, leafless or with small trifid leaves or bracts under the branches of the panicle. This usually consists of 3 short branches, each with a single small head of flowers, with a longer branch lower down the stem bearing 3 small heads, but sometimes there are more 3-headed branches forming an irregular umbel. At the time of flowering, the calyx-teeth almost conceal the petals; as the fruit ripens into little burrs of about 5 mm, the prickles almost conceal the calyx-teeth. — Flow. March.

M. ma. Ramle (Muschler), recently introduced.

Throughout Europe except the extreme north, extendig eastward in to Central Asia and India, southward to South Africa.

380. (3.) **Coriandrum** Linn.

Calyx-teeth small, acute, often unequal. Petals obovate, emarginate, white or purplish, of the outer flowers unequal, often radiant. Fruit subglobose, ridges not prominent, dorsal primary and adjacent secondary strongest, lateral primary and secondary obscure; vittae obscure, solitary, under the secondary ridges; carpels slightly concave on the inner face, commissure distinctly 2-vittate; carpophore 2-partite. Seeps convexo-concave, about thrice as broad as thick. — A herb, annual, branched, glabrous. Leaves decompound. Umbels compound, rays few; bracts none or small linear; bracteoles few, filiform.

A small genus of only a single species, very distinct in the from of the fruit.

976. **Coriandrum sativum** L. Spec. Plant. I (1753), p. 367. — Boiss. Flor. Or. II, p. 920. — Rchbch. Ic. XXI, tab. 202. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 472. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — An annual plant, 40—50 cm high, or sometimes somewhat more, glabrous. Leaves of two kinds, the lower ones petioled, imparipinnatisect into 2—3 pairs of ovate-cuneiform, obtuse, incised-dentate segments, the upper ones short-petioled or subsessile, 2—3-pinnatisect into linear-setaceous lobes. Umbels 5—10-rayed, involucre 0, or composed of 1, small, setaceous bract, involucel usually of 3, short, linear-lanceolate bracts. — Flow. March to April.

M. ma. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere and often naturalized. — The plant has a disagreable bug-smell; it is used as a pot herb.

Local name: kuzbara.

Cultivated everywhere in all part of the Mediterranean region. Wild known from Palestine, Syria, Mesopotamia and Greece.

381. (4.) **Bupleurum** Linn.*).

Calyx-teeth obsolete. Fruit laterally flattened or somewhat twin. Stylopodium flat or depressed, entire. Ribs of mericarp 5, equal, subulate, acute, or thickened, or nearly obsolete. Intervals with or without vittae. Seed flat or concave within. — Herbs or shrubs, with yellow or yellowish-green flowers, and entire leaves.

*) The classification of this difficult genus is that given by Hermann Wolff in his: Umbelliferae-Apioideae in Engler, Das Pflanzenreich IV fasc. 228 (1910).

A considerable genus, widely diffused over the temperate regions of the Old World, and one of the few natural ones among Umbelliferae, but distinguished more by its entire leaves, with parallel veins and yellow flowers, than by the carpological characters, which in different species correspond to different short-fruited genera.

A. Middle and upper leaves all perfoliate . . 1. **B. subovatum.**
B. Leaves never perfoliate.
  I. Bracts of the involucel glumaceous, excavate . . . . . 2. **B. nodiflorum.**
  II. Bracts of the involucel not glumaceous, plane.
    a) Mericarp smooth . . . . . 3. **B. Muschleri.**
    b) Mericarp tuberculato-granulate . . 4. **B. semicompositum.**

977. (1.) **Bupleurum subovatum** Link ap. Spreng. Spec. Umb. minus cogn. (1818), p. 19. — Wolff in Engler, Das Pflanzenreich IV fasc. 228, p. 46. — Bupleurum rotundifolium Desf. Flor. Atlant. I, p. 229. — Bupleurum perfoliatum β longifolium Desv. in Journ. Bot. II, p. 315. — Bupleurum intermedium Poir. in Lam. Encyclop., Suppl. IV p. 585. — Bupleurum protractum Hoffgg. and Link Flor. Port. II, p. 387. — An annual plant, 30—50 cm high, often somewhat more, glaucous, divaricately branched from the base. Root-leaves tapering at the base, oblong; stem-leaves oblong, the uppermost ovate. Umbels 2—5-rayed; bracts of involucel 5—7-nerved, 3—4 times as long as the flowers, ovate-orbicular, mucronate; fruit ovate, granular in intervals. — Flow. February to March.

M. ma. Alexandria-West and -East, in deep sandy places. — **M. p.** El-ʿArîsh.

Local name: halablûb; helawân.

Also known from all the other parts of the Mediterranean region.

var. **heterophyllum** (Link) Wolff in Engler, Das Pflanzenreich IV fasc. 228 (1910), p. 48. — Bupleurum perfoliatum γ longifolium Desv. Journ. Bot. II, p. 315. — Bupleurum heterophyllum Link Enum. Hort. Berol. I, p. 262. — Boiss. Flor. Or., Supplem. p. 251. — Bupleurum protractum Hffgg. and Link β heterophyllum Boiss. Flor. Or., Supplem. p. 251. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 79 no. 459. — Sickenberg. Contrib. Flor. d'Eg., p. 239. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers. Flor. Rhinocol., p. 796 no. 118. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 648 no. 130. — Bupleurum aegyptiacum Nectoux in Herb. Willd., no. 5640. — An annual herb, 5—10 cm high, glaucous, dichotomous from the base. Root-leaves linear-lanceolate or linear, the upper ones clasping, auricled to perfoliate, oblong-lanceolate. Umbels 2—3-rayed; bracts of the involucre ovate,

abruptly acuminate, 5—7-nerved, scarcely longer than the angled, granular fruit. — Flow. March to April.

M. ma. Marmarica: Umm Rakum; Matruqa; Mariut; Abusîr; Montaza; Alexandria-West to Abukîr. — **M. p.** El-ʾArish; el-Grâdy.

Local name: halablûb; helawân (Ascherson).

Scattered along the North African Coast.

978. (2.) **Bupleurum nodiflorum** Smith in Sibth. and Smith Flor. Graec. I (1806), p. 177. — Wolff in Engler, Das Pflanzenreich IV fasc. 228, p. 76. — Boiss. Flor. Or. II, p. 840. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 79 no. 460. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 648 no. 131. — Bupleurum proliferum Del. Illustr. Flor. d'Eg., p. 61 tab. 22 fig. 2. — Bupleurum mareoticum Del. Illustr. Flor. d'Eg., p. 61 tab. 22 fig. 3. — Bupleurum nanum Poir. in Lam. Encyclop., Supplem. I p. 750. — An annual plant, 30—50 cm high or more, 2—3-chotomously branched from the base. Leaves linear-lanceolate to linear, 3—5-nerved. Umbels head-like, sessile, rays 3—6, all shorter than the involucre; bracts of the involucel ovate-lanceolate, acuminate, mucronate, translucent, three keeled. — Flow. February to March.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; Damietta; el-ʿArish.

Also known from all the other parts of the Middle and South-Eastern Mediterranean region.

979. (3.) **Bupleurum Muschleri** Wolff in Fedde Repertor. Spec. Novar. IX (1911), p. 565. — An annual erect plant, 40—50 cm high; stems virgate, flexed, obsoletely angulate, in the lower part 2—2,5 mm thick, branching from the base; branches elongate, suberect, virgate. Basilar leaves narrow-linear, stem ones clasping, acute. Umbels numerous, the terminal one with an 1—2 cm long peduncle, quadrangulate, 2—3-radiate, rays unequal. Involucre-bracts 2—3, shorter than the rays, narrow-linear-lanceolate, long-acuminate, 3-nerved; bracts of the involucel 4, rarely 3 or 5, narrow-lanceolate, shortly acuminate, 3-nerved, middle-nerve carinate on the undersurface longer than the floriferous-umbels. Flowers 3—4 in the umbels, shortly pedicellate; petals pale-yellow, entire glabrous, semiorbicular, convex; style short; stylopod plan-compressed. — Flow. February.

N. v. Edfu, at the margin of fields (Muschler).

Only known from this locality. — The species is closely allied to *Bupleurum trichopodum* Boiss. and Sprun growing in Cyrenaica.

980. (4.) **Bupleurum semicompositum** L. Dissert. Demonstr Plant. (1753), p. 7. — Wolff in Engler, Das Pflanzenreich IV, fasc. 228

p. 106. — Odontites semicomposita Spreng. Prodrom. Unbellif., p. 33. — Bupleurum glaucum Ledeb. Flor. Ress. II, p. 261. — Boiss. Flor. Or. II, p. 842. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 79 no. 461. — Aschers.-Schweinf. Ill. Flor. d'Eg. Supplem., p. 718. — Sickenberg. Contrib. Flor. d'Eg., p. 239. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 648 no. 132. — An annual plant, 10—30 cm high, sometimes somewhat more, dichotomously branched from the base. Leaves linear or sometimes oblong-lanceolate. Umbels unequally 3—5-rayed, near the top of the branches; bracts of the involucel a little longer than the flowers, 3-nerved, linear-lanceolate. Fruit pedicelled, nearly globular, twin, granular-muricate, with nearly obsolete ribs. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Brullus; Damietta; Qatîya; Bureyq; El-'Arish. — **N. d. N. f. N. v.** Scattered on waste places and in sandy places.

Local name: zafrân (Ascherson).

Also known from the other parts of the Mediterranean region.

382. (5.) **Apium** Linn.

Calyx-teeth inconspicuous. Petals ovate or broad, with a short inflexed tip, the margins not recurved, scarcely imbricate. Disk rather thick, confluent with the conical base of the styles. Fruit short, slightly compressed laterally. Carpels ovoid, with 5 prominent ribs, the lateral ones close to the rather narrow commissure, with 1 vitta under each furrow, and usually 2 at the commissure. Carpophore undivided. Seed nearly terete, straight. — Erect or prostrate herbs. Leaves ternately or pinnately dissected. Umbels compound, leaf-opposed or terminal, without involucral bracts.

The genus, whether limited to 3 or 4 species, or further extended to include several species distinguished upon slight grounds by modern botanists, will be found to extend over most of the temperate and warmer regions of the globe.

981. **Apium graveolens** L. Spec. Plant. I (1753), p. 379. — Boiss. Flor. Or. II, p. 856. — Rchbch. Ic. XXI tab. 13 fig. II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 462. — Sickenberg. Contrib. Flor. d'Eg., p. 239. — A biennial plant, 50—80 cm high, glabrous; root spindle-shaped; stem hollow, deeply grooved. Leaves somewhat fleshy, the lower petioled, pinnatisect into 5, cuneate, incised-lobed segments, toothed at the apex. Umbels short-peduncled or sessile. — Flow. March to April.

M. ma. Mariut; Montaza, Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta. — **N. d. N. v. O. D. a. sept.** Scattered on way-sides on wet soil and on waste places, rarely cultivated.

Local name: qarrâbîs; generally: kerafs.

Common in all parts of the Mediterranean region and Middle Europe, Western Asia to Belutshistan.

383. (6.) **Heliosciadium** Koch.

Calyx-teeth obsolete. Petals ovate, concave, entire or slightly emarginate, inflexed at the apex. Stylopodia depressed, margins entire; styles short, divergent. Fruit ovate, laterally compressed; primary ridges blunt, equal; secondary ridges rounded, rather prominent; mericarp 5-sided. Vittae solitary, conspicuous, opposite the secondary ridges, but 2 in the commissural face of each mericarp. Carpophore undivided. — Herbs. Leaves pinnate. Umbels regularly compound, usually opposite the leaves; involucre none; involucels of 0 or many leaves. Flowers white.

A genus of moderate size, scattered over the whole world.

A. Leaf segments lanceolate, crenate . . . . . 1. **H. nodiflorum.**
B. Leaf segments cuneate, dentate . . . . . 2. **H. crassipes.**

982. (1.) **Heliosciadium nodiflorum** (L.) Koch Gen. Umbell. (1824), p. 126. — Boiss. Flor. Or. II, p. 856. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 463. — Sickenberg. Contrib. Flor. d'Eg., p. 293. — Apium nodiflorum Rchbch. Ic. XXI, tab. 15. — Sium nodiflorum L. Spec. Plant. I, p. 361. — DC. Prodrom. IV, p. 104. — A perennial plant, 10—50 cm high, sometimes somewhat more, glabrous, rooting at the lower part of the stems. Leaves pinnate, consisting of 3—6 pairs of ovate-lanceolate, serrate leaflets, with oblique base. Umbels opposite the leaves, sessile or short-peduncled; bracts of the involucre lanceolate, scarious-margined; fruit ovate, 1,5—2 mm long, with prominent ribs. — Flow. March to April.

M. ma. Along ditches; Mariut; Montaza; Alexandria-West and -East. — **N. d.** Alexandria; Damietta. — **O.** Little Oasis. — **D. l.** Wady Natrun.

Local name: djazar ʾafârit (Ascherson).

Also known from the other parts of the Mediterranean region and Middle Europe, Mesopotamia and Persia.

983. (2.) **Heliosciadium crassipes** (Spr.) Koch Gen. Umbell. (1824), p. 126. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758.

— Sium crassipes Spreng. System. IV, p. 120. — A glabrous plant, creeping and rooting at the base like the last, but much smaller and more slender, and often half-immersed in water, when the submerged leaves are divided into capillary segments. Flowering stems 12—16 cm high, with small ternate or pinnate leaves; the segments 3-toothed or 3-lobed, each lobe again often 3-toothed. Umbels on short peduncles opposite the leaves, as in H. nodiflorum, but generally of 2 or 3 rays only, without involucre; the partial umbels of 5 or 6 small flowers, with 2 or 3 minute bracts. — Flow. March to April.

N. d. Alexandria.

Also known from Southern and Middle Europe.

384. (7.) **Petroselinum** Linn.

Calyx-teeth obsolete. Fruit ovate, laterally compressed, nearly twin. Ribs of mericarps 5, filiform, equal, the lateral at margin. Stylopodium short-conical. Intervals with 1 oil-tube. Carpophore 2-parted. Inner face of the albumen flat. — Monocarpic herbs, with yellowish-green or reddish flowers.

A small genus widely spread over the whole World.

984. **Petroselinum sativum** Hoff. Gen. Umbell. I (1814), p. 78 tab. I fig. 7. — Boiss. Flor. Or. II, p. 685. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80. — Petroselinum hortense Rchbch. Ic. XXI, tab. 16 fig. II. — Apium Petroselinum L. Spec. Plant. I, p. 379. — An annual plant 20—60 cm high, or more. Glabrous; stem erect, branching. Leaves triangular in outline, the lower ones 2-pinnatisect into ovate-cuneate, incised-dentate segments, the upper ones trisect into lanceolate-linear, entire leaflets, or entire, linear. Umbels peduncled, with numerous, equal rays. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere, and escaped from cultivation.

Local name: maqdûnis; baqdûnis.

Also known from Algeria, Tunisia, Middle Europe and Syria.

385. (8.) **Pithyranthus** Viv.

Calyx-teeth obsolete. Fruit ovate or orbicular, laterally flattened. Ribs of mericarps filiform, nearly obsolete. Stylopodia conical, with somewhat wavy margin. Intervals with one vitta. Carpophore 2-parted. Seed nearly terete. — Much branched, rigid, perennial, desert herbs, with whitish, leafless stems, and white or yellowish-green petals.

A small genus in the Mediterranean region.

A. Umbels 6—8-rayed; bracts persistent . . . . . 1. **P. tortuosus.**
B. Umbels 2—5-rayed; bracts caducous . . . . . 2. **P. triradiatus.**

985. (1.) **Pithyranthus tortuosus** Benth. and Hook. Gen. I (1862—1867), p. 890. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 464. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers. Flor. Rhinocol., p. 796 no. 120. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Bubon tortuosum Desf. Flor. Atlant. I, p. 257 tab. 73. — Deverra tortuosa DC. Prodrom. IV, p. 743. — Boiss. Flor. Or. II, p. 860. — A perennial plant, 40—60 cm high or more, glabrous, dichotomously branched from the base. Root-leaves and lower stem-leaves rounded in outline, bipinnatisect into linear-subulate, rigid, divergent lobes; the upper ones reduced to oblong sheaths. Umbels with 6—8 rays, 1,5—2 cm long; persistent bracts of the involucre oblong-ovate, and of the involucel ovate, membranous-margined, shorter than the pedicels; fruits shorter than the pedicel, sparingly hirtulous. — Flow. March to April.

M. ma. Marmarica: Matruqa to Abukîr. — **M. p.** Qatîya to El-'Arîsh; el-Grady. — **D. l. D. i. D. a. sept.** Everywhere in the desert common.

Local name: shebet-el-gebel; qasûkh (Forsk.); kerâwy (Ehrenberg); saqûkh (Schweinfurth); qesîkh (Ascherson).

Also known from Tunisia and Tripolitania.

986. (2.) **Pithyranthus triradiatus** (Hochst.) Aschers. and Schweinfurth in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 80 no. 465. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Deverra riradiata Hochst. in Schimp. Plant. arab. exsicc. II, p. 454. — Boiss. Flor. Or. II, p. 861. — A perennial plant, 40 cm to 1 m high or more, glabrous; stems erect, juncaceous, alternately branched, loosely panicled above. Upper stem-leaves reduced to short, ovate-triangular sheaths. Umbels 2—6 rayed; bracts of the involucre and the involucel caducous, the latter ovate, hooded, as long as the flowers; fruits shorter than the pedicel, densely long-hirsute. — Flow. March to April.

D. i. D. a. sept. Scattered in the deserts.

Local name: qasûkh; saqûkh.

Also known from Arabia Petraea and Syria.

386. (9.) **Carum** Linn.

Calyx-teeth obsolete or small; petals oval or obovate, with inflected acumen, entire or bilobed, usually white. Stylopods conical or thick. Fruit ovate or oblong, laterally compressed;

commissure wide or narrowed; mericarp 5-sided or subterete; primary ridges blunt, somewhat prominent, the lateral ones marginal at the commissure. Vittae solitary between the ridges, 2 in each commissural face. Carpophore bipartite or bifid. Seed subterete. — Herbs glabrous or the fruit only papillose with scarcely glabrous umbels and hairy petals. Leaves pinnately decompound, with narrow segments. Umbels regularly compound with several or many primary and secondary rays. Involucre of 0, 1, or few bracts, and involucels with 0 or several bracteoles. Flowers usually hermaphrodite.

A considerable genus, widely distributed, and chiefly inhabiting the temperate and subtropical regions of the world.

987. **Carum Carvi** L. Spec. Plant. I (1753), p. 378. — Boiss. Flor. Or. II, p. 879. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80. — Bunium Carvi M. Bieb. Flor. Taur.-Caucas. I, p. 211. — Rchbch. Ic. XXI, tab. 31 fig. II. — A biennial forming a tap root, and perhaps occasionally a perennial stock. Stem erect, branched, 35—60 cm high. Leaves with a rather long sheathing footstalk, pinnate, with several pairs of segments, which are sessile, but once or twice pinnate, with short linear lobes; in a leaf of 6 or 8 cm, the lowest or next to the lowest segments are about $^3/_4$ of a cm long, the others diminishing gradually to the top. Upper leaves smaller and less divided. Umbels of about 8 or 10 rays, either without involucres, or with 1 or 2 small linear bracts. Carpels (commonly called Caraway seeds) about 5 mm long, linear-oblong, and usually curved, with the ribs prominent. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: kerâwiâ.

Also known from Europe, Tripolitania, Caucasia and Persia.

387. (10.) **Ammi** Tourn.

Calyx-teeth obsolete or small. Petals obovate, with an inflexed point, emarginate, or with 2 unequal lobes, the exterior ones frequently larger. Fruit laterally compressed, ovate-oblong. Carpels with 5 filiform equal ribs, the lateral ones marginal. Interval with single vitta, commissure with 2 vittae, carpophore free, 2-parted. Seeds terete-convex, flattish on the face. Herbs with a fusiform root and pinnately divided or many-parted leaves. Umbels compound, many-rayed. Involucre many-leaved, the leaflets 3-cleft or pinnatifid. Involucels many-leaved, the leaflets undivided.

A genus of a few species growing chiefly in the Mediterranean region, and extending to Chili and Brazil.

A. Leaves ovate in outline.
I. Leaves 1—3-pinnately parted into oblong or oblanceolate, acutely serrulate leaflets . . . . . 1. **A. majus.**
II. Leaves tripinnatisect into linear, divaricate lobes 2. **A. Visnaga.**
B. Leaves oblong in outline . . . . . 3. **A. copticum.**

988. (1.) **Ammi majus** L. Spec. Plant. I (1753), p. 349. — Boiss. Flor. Or. II, p. 891. — Rchbch. Ic. XXI, tab. 23. — DC. Prodrom. IV, p. 108. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 468. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Stems 90 cm to 1,5 m high, subglaucous, glabrous, terete. Leaves pinnately divided, segments cartilaginous on the margin, acutely serrate; lower ones lanceolate; the upper ones many-cleft, linear. Primary rays of the umbel sometimes 5 cm long, slender, and as well as the secondary rays scattered with a few minute serrulate points; secondary rays 2—5 cm long, about equalling the linear acute bracteoles. Bracts of the involucre 1,5—2,5 cm long. Fruit 1 mm long. — Flow. February to March.

M. ma. M. p. N. d. N. f. O. D. a. sept. Everywhere on way sides and often in fields.

Local name: kerafs; khelle; sheytanîya (Ascherson); generally: khelley.

Everywhere in the Mediterranean region, Mesopotamia and Persia frequently introduced into Middle Europe and in some localities naturalized.

989. (2.) **Ammi Visnaga** (L.) Lam. Dict. I (1783), p. 132. — Boiss. Flor. Or. II, p. 892. — DC. Prodrom. IV, p. 108. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 470. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers. Flor. Rhinocol., p. 797 no. 121. — Daucus Visnaga L. Spec. Plant. I, p. 348. — Ic. Jacq. Hort. Vind. III, tab. 26. — An annual plant. Leaves ovate in outline, fan-shaped, tripinnatisect into linear, divaricate lobes. Umbels dense, with very numerous, 4—6 cm long, stiff rays, spreading in flower, contracted in fruit, arising from a dilated disk; bracts of the involucre long, filiform, tripartite, at length deflexed; fruiting pedicels thick; fruit 1,5—2 cm long, ovate, with thick ribs. — Flow. March to April.

M. p. El-'Arish, recently introduced. — **N. d. N. f.** Common in waste place and in fields, especially in clay soil.

Local name: khillâl; khillân; gazar sheytâny (Ascherson); generally: khelle.

Also known from the Mediterranean region and the Orient. — The umbels of stiff, fruiting pedicels are sold as bundles of toothpicks.

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990. (3.) **Ammi copticum** L. Mant. (1771), p. 56. — Boiss. Flor. Or. II, p. 891. — Ic. Jacq. Hort. Vindob. II, tab. 196. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 469. — Carvum copticum Benth. and Hook. Gen. Plant. I, p. 891. — Ptychotis copticus DC. Prodrom. IV, p. 108. — Trachyspernum copticum Link Enum. I, p. 267. — Pale glaucescent, slender. Stem erect branched, terete, striate, 30 to 90 cm high. Leaves multifid with linear segments, the uppermost ones simply pinnatilobed; petioles sheathing. Umbels at the ends of stem and branches with very short hairs on the secondary rays, bracteoles, and sometimes on the bracts; primary rays of fruiting umbels about 1 cm long, secondary rays about 1—10th cm long; involucre and involucels of several linear leaves shorter than the rays. Petals roundly-obovate, bilobed, ciliate on the margins and on the midrib outside, white; filaments about equalling the petals. Fruit ovate, muricate or papillose, 1—12th cm long, contracted at the commissure. Carpophore bifid. — Flow. March to April.

N. d. Near Kasr-el-'Ain at Cairo (Hussein). — Has not been found again.

Occurs also in Tropical Africa, Arabia Petraea and India.

388. (11.) **Berula** Mert. and Koch.

Calyx-teeth obsolete; petals oval with an inflected acumen, midrib impressed, emarginate, connivent in bud; stamens exceeding the petals. Stylopodia convex, thick, margin entire; style short and contiguous in flower, elongated and spreading in fruit. Fruit shortly ovoid, laterally compressed, subdidymous, contracted at the commissure when ripe; mericarp somewhat pentagonal; primary ridges rather prominent, smooth, lateral ones near the commissure. Vittae ∞. Carpophore 0. Seeds terete-pentagonal. — Glabrous herbs, growing in marshy or subaquatic places. Leaves pinnate, dentate; umbel regularly compound, terminal and lateral, furnished with many-leaved involucre and involucels.

A small genus of only a few species in the Mediterranean region and Europe.

991. **Berula angustifolia** (L.) Koch Deutschl. Flora (1840), p. 433. — Boiss. Flor. Or. II, p. 889. — Rchbch. Ic. Flor. German., fig. 1878. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 467. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Sium angustifolium L. Spec. Plant. I, p. 1672. — A perennial plant, 30—40 cm high or more. Root stoloniferous; stem hollow, branching. Leaves pinnatisect into oblong, incised, serrate leaflets. Umbels short peduncled,

opposite the leaves; bracts of the involucre large, lanceolate, incised, or entire. — Flow. February to March.

N. d. Alexandria; Bank of the canal near Mandara.

Also known from the other parts of the Eastern Mediterranean region and Europe.

389. (12.) **Pimpinella** Linn.

Calyx-teeth obsolete; petals ovate or ovate-lanceolate, glabrous or minutely dentate, usually with an acute or blunt point, emarginate or entire, connivent in bud. Disk with thick stylopodia, convex or conical, margin entire; styles long or rather short, erect or spreading. Fruit glabrous, papillose or covered with straight or hooked hairs, laterally more or less compressed; commissure wide; primary ridges equal; secondary ridges absent. Vittae usually alternating with the primary ridges, 2 or more in the commissure of each mericarp. Carpophore bifid or bipartite. Seed subterete or dorsally compressed. Herbs annual, biennial or perennial. Leaves pinnate or decompound; umbels regularly compound; bracts of the involucre 0 or 1-leaved or sometimes many-leaved, of the involucels 0 or of few leaves. Flowers white or slightly purplish.

A large genus widely scattered over the World.

A. Umbels with 5—8-rays; fruits 1 mm long . . 1. **P. Schweinfurthii.**
B. Umbels with 10—12 rays; fruits 3 mm long . 2. **P. Anisum.**

992. (1.) **Pimpinella Schweinfurthii** Ascherson in Sitzber. Bot. Ver. Prov. Brandbg. XXI (1879), p. 69. — Sitzber. Naturf. Freunde (1879), p. 43. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80 no. 466. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — An annual pubescent-hirtellous plant; stems 40—50 cm high or sometimes somewhat more, in the upper part branched, striate. Basilar leaves long-petiolate, mostly pinnately ternate or biternate, leaflets like the lower leaves entire, orbicular, petiolate, at the base with a broad sinus reniform, subduplicate-incised-dentate; the cauline ones sessile with cuneiform-obovate segments, incise-dentate; terminal umbel 11-rayed, the lateral ones 6—5-rayed; involucrum 0 or rarely 1-bract; involucel of only one bracteole; petals on the under-surface green-carinate, in the lower part sparingly hirtellous; stylopod conical; styles long, erect-patent, deciduous; fruits small, 1 mm long or sometimes less, densely with hispid hairs. — Flow. March.

O. Great Oasis, in fields at Kharge near Gyau and near Gyenna.

Only known from these localities.

993. (2.) **Pimpinella Anisum** L. Spec. Plant. I (1753), p. 399. — Boiss. Flor. Or. II, p. 866. — Rchbch. Ic. Flor. Germ., tab. 1685. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 80. — An annual plant 50 cm high or sometimes more, puberulent. Lower leaves round-cordate, incised, the intermediate trisect with wedge-shaped, cut-lobed segments; the upper sessile, divided into linear, entire or trifid lobes. Umbels with 10—12 rays, about twice as long as the fruiting umbellets; involucre and involucel with one linear bract or 0; petals puberulent without; fruit puberulent, ovate-pyriform, 3 mm long, 2 mm broad, tapering at the apex. — Flow. January to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere and often naturalized.

Local name: yassûn (Ascherson); generally: yânisûn.

Cultivated everywhere in Europe and the other parts of the world.

390. (13.) **Scandix** Tourn.

Leaves dissected. Umbels compound, with partial involucres of several bracts, and white flowers. Fruit linear, with a very long, smooth beak. Carpels (below the beak) with 5 obtuse ribs, without vittas. Albumen of the seed with a longitudinal furrow on the inner face.

A small but distinct genus, ranging chiefly over the Mediterranean region and west-central Asia.

994. **Scandix Pecten Veneris** L. Spec. Plant. I (1753), p. 368. — Boiss. Flor. Or. II, p. 914. — Rchbch. Ic. XXI, tab. 188 fig. III—V. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 471. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 649 no. 135. — A branching annual, erect or spreading, 12—30 cm high, and more or less hairy. Leaves twice or thrice pinnate, with short segments cut into narrow lobes. Umbels terminal, of 2 or 3 rays, without general involucres; partial involucres of several lanceolate bracts, often 2 or 3-lobed at the top. Flowers almost sessile, small and white, with a few large outer petals. Fruits attaining near 5 cm; the carpels at the base cylindrical and ribbed, 8 or 10 mm long, the remainder occupied by a stiff, flattened beak, often compared to the tooth of a comb. — Flow. March to April.

M. ma. Alexandria; Mex; Ramle, recently introduced.

Also known from the other parts of the Mediterranean region, Europe, Caucasia, Persia, Afghanistan and Belutshistan.

391. (14.) **Chaerophyllum** Linn.

Anthricus of some authors partly.

Calyx-teeth obsolete. Fruit laterally flattened, linear, rarely oblong. Ribs of mericarp 5, obtuse, equal, the lateral one at the margin, the intervals groove-like, with 1 oil-tube. Styles elongated. Carpophore bifid or bipartite. Albumen deeply grooved along the inner face. — Biennial or perennial herbs, with white or yellowish flowers, sometimes polygamous.

A considerable and rather natural genus, widely diffused over the northern hemisphere without the Tropics.

995. **Chaerophyllum cerefolium** (L.) Crtz. in DC. Prodrom. IV (1828), p. 109. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Aschers. Flor. Rhinocol., p. 797 no. 121. — Anthriscus cerefolium Hoffm. Gen. Umbell., p. 41. — Boiss. Flor. Or. II, p. 913. — Chaerophyllum sativum Lam. Encyclop. I, p. 410. — Anthriscus trichosperma Schult. Syst. VI, p. 525. — Scandix cerefolium L. Spec. Plant. I, p. 368. — Stem terete, striate, glabrous or pilose, 60—90 cm high. Radical leaves 3 or 4 times ternate, segments ovate-pinnatifid, glabrous or pilosely pubescent, on long petioles, dilated and sheathing towards base, 30—60 cm long; upper leaves on short dilated and sheathing petioles, smaller. Umbels lateral and terminal, of several primary and secondary rays; primary rays about 2 cm long, secondary rays 4—5 mm long. Leaves of the involucels many, lanceolate, glabrous or ciliate; many flowers in the secondary umbels abortive. Petals unequal. Fruit smooth or with a few very faint tubercles, 4—5 mm long. Vittae about 9 in each mericarp; carpophore bifid at the apex or to the middle. Pedicels with a few short caducous hairs at the apex, seen at the base of carpophore. — Flow. March to April.

M. ma. Ramle. — **M. p.** Maq-ta' Rûs-es-Sûbyân. — **N. d. N. f. N. v.** Rarely cultivated and naturalized.

Local name: maqdûnis frengy (Forsk.).

Als known from Europe and Sibiria.

392. (15.) **Anthriscus** Hoffm.

Chaerophyllum of some authors partly.

Calyx-lobes obsolete; petals oval, with a shortly inflected acumen, nearly entire, white; stylopodia flat or conical. Fruit ovate-oblong, glabrous, with inconspicuous primary ridges, somewhat attenuate at the apex; mericarps subterete or somewhat dorsally compressed. Vittae slender, often unequal and irregular; carpophore undivided

or bifid. Seed subterete, with a wide and deep furrow on inner face. — Glabrous or hairy, erect, branching herbs. Leaves pinnately or subternately decompound. Involucre 0; involucels of 0 or several leaves.

Genus of a few species, growing chiefly in the temperate and subtropical parts of the Northern hemisphere of the Old World.

996. **Anthriscus lamprocarpa** Boiss. in Ann. Scienc. Nat. (1844), p. 59. — Flor. Or. II, p. 912. — Post Flor. Sin.; Syria and Palest., p. 353. — A biennial plant 60—80 cm high; stem striate, divaricately branched above, often inflated below joints. Leaves tender, the lower ones broad-ovate in outline, 2—3-pinnatisect into long, secondary petioles woolly at the base, segments petiolulate, ovate-oblong, obtusely incised-dentate, glabrous except along bristly nerves of the lower surface. Umbels 3—8-rayed; involucre 0; bracts of the involucel 5, oblong, acuminate, woolly at the margin; fruit oblong-tapering, shining 1 cm long, styles scarcely longer than the diverging stylopodia. — Flow. April.

M. p. Port Said, in deep sand, certainly introduced (Muschler).

Also known from Syria and Palestine.

393. (16.) **Foeniculum** Linn.

Leaves finely dissected. Umbels compound, without involucres. Petals yellow, entire, inflected at the top, but not pointed. Fruit oval, slightly compressed laterally, without visible calycine teeth. Carpels with 5 prominent ribs, and single vittas under the furrows.

A few species, with the yellow flowers and habit of Anethum (or Dill-seed), from which it has been separated, as having the fruit somewhat laterally compressed, not flattened from front to back.

Leaves dissected into capillary lobes; umbels 13—20-rayed . . . . . 1. **F. capillaceum.**

Leaves dissected into linear, ripidlobes umbels 5—7-rayed . . . . . 2. **F. piperitum.**

997. (1.) **Foeniculum capillaceum** Gillb. Flor. Lithuan. IV (1781), p. 40. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 473. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 649 no. 136. — Foeniculum officinal All. Flor. Pedem. II, p. 25. — Boiss. Flor. Or. II, p. 975. — Rchbch. Ic. XXI tab. 89 fig. I—II. — Foeniculum vulgare Gaertn. De Fruct. I, p. 105 tab. 23. — Anethum foeniculum L. Spec. Plant. I, p. 377. — Stock perennial, but usually of short duration. Stems erect, branched, 60—90 cm high, or when cultivated, still taller. Leaves 3 or 4

times pinnate, with very narrow, linear or subulate segments, rather stiff in dry situations, very slender when cultivated. Umbels rather large, of 15, 20, or more rays, more or less glaucous. Fruit about 6 mm long, the vittae very conspicuous. — Flow. February to April.

M. ma. Marmarica: Matruqa; Bîr-el-qasabah. — **M. p. N. d. N. f. N. v. D. a. sept.** Cultivated and often naturalized.

Local name: shamar.

Apparently of South European origin, but has long been cultivated and establishing itself readily in stony or sandy hilly situations, especially near the sea, it is now diffused over temperate and subtropic regions of the World.

998. (2.) **Foeniculum piperitum** DC. Prodrom. IV (1828), p. 142. — Boiss. Flor. Or. II, p. 971. — Rchbch. Ic. German., p. 1931. — A perennial herb, 1—2 m high, stem terete, striate. Leaves 2-pinnatisect into linear, rigid lobes; the upper reduced to a caudate petiole. Umbels 5—7-rayed. — Flow. March to April.

N. d. Between, Alexandria and Ezbet-el-Khurshid.

Also known of the other parts of the Mediterranean region of Europe and Northern Africa.

394. (17.) **Crithmum** Tourn.

Leaves succulent, dissected. Umbels compound, with general and partial involucres. Petals entire. Fruit ovoid, not compressed, without distinct calycine teeth. Carpels of a thick, succulent or somewhat corky consistence, with 5 acute ribs becoming prominent when dry, but not winged; the vittae numerous, slender, and irregular. Seeds loose in the cavity, with numerous fine vittae on the outside.

A single species, very different from any other Egyptian Umbellifera, but closely allied to the large Mediterranean and Asiatic genus Cachrys, with which some botanists unite it.

999. **Crithmum maritimum** L. Spec. Plant. I (1753), p. 354. — Boiss. Flor. Or. II, p. 977. — Rchbch. Ic. XXI tab. 59. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 474. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 649 no. 137. — A perfectly glabrous perennial, seldom above 30—40 cm high, almost woody at the base; the young branches, foliage, and umbels, thick and fleshy. Leaves twice or thrice ternate, with thick linear segments about 2,5 cm long. Umbels of 15—20 or more rays. Involucres of several small linear or lanceolate bracts. Petals very minute, fugacious. Fruits about 6 mm long. — Flow. March to April.

M. ma. Sea side cliffs in Marmarica: Matruqa; Alexandria-West.

Widely distributed at the coasts of Western Europe (the "sanphiri" in Shakespeare's King Lear, still to day abunding in Shakespeare's cliff at Dower), and Northern Africa.

395. (18.) **Ducrosia** Boiss.

Calyx with 5 minute teeth. Petals obovate entire with inflexed limbs. Fruit plane-compressed from the back, margin dilatate tumid smooth. Mericarp with 5 ridges, filiform. Seeds plane. Vittae solitary in the ridges. — Glaucous herb, petals white not radiante, puberulous at the outer side.

A small genus with (besides ours) only two species in the Eastern Orient.

1000. **Ducrosia Ismaelis** Aschers. in Sitzber. naturf. Freunde Berlin (1879), p. 44 and in Sitzber. Bot. Ver. Prov. Brandbg. XXI (1879), p. 67. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 476. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — An annual, glabrous plant, glaucous, in the lower parts pruinose; stems striate, 15 to 20 cm long or sometimes somewhat more, in the lower part densely leafy, branching, in the upper parts without leaves. Leaves long-petioled, vagina short, with a white margin, lamina in outline rotundate-ovate, pinnately ternate lateral segments sessile, like the terminal-one with lanceolate-linear acute segments, white-callose at the apex; umbels 4—9-rayed; the bracts of the involucre and the involucel triangular-lanceolate, broadly white-margined; ovary hirtellous; fruit umbilicate elliptical 5 mm long, 3,5 mm thick, sparingly hirtellous; mericarp as in the generic diagnosis. — Flow. March.

O. Great Oasis: In waste and sandy places near Khargeh.

Only known from this locality.

396. (19.) **Ferula** Tourn.

Calyx-teeth rather prominent, small. Petals ovate, with inflected lanceolate acumen, slightly emarginate, nearly equal. Stamens with filaments longer than the petals. Disk flat, with narrow undulating margin. Fruit oval, dorsally much compressed. Primary ridges 5, blunt except the marginal ones, which are winged, 3 (or rarely 2) being plainly visible on each dorsal face. Vittae about 3 between each primary ridge, and 4 on the commissural face; carpophore bipartite. Seeds dorsally compressed, somewhat concave. — Perennial glaucescent herbs. Leaves highly decompound with filiform segments. Petioles of the upper leaves much dilated, sheathing. Umbels regularly

compound, of many primary and secondary rays, terminal, subterminal, and lateral. Involucre and involucels none or of few caducous leaves. Flowers yellow, polygamous.

A large genus, inhabiting South Europe, Western and Central Asia, and North Africa.

1001. **Ferula sinaica** Boiss. Diagnos. Plant. Orient., Ser. I fasc. X (1849) p. 40. — Flor. Or. II, p. 987. — Aschers.-Schweinf. Ill. Flor. d'Eg. Supplem., p. 758. — Aschers. Flor. Sirbon., p. 812 no. 16. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — A perennial plant, 1 m high or more, glabrous, glaucescent. Leaves much dissected, all the ribs thickened, lobes linear, 3—5 cm long, obtuse, mucronulate, flaccid; those of lower leaves 2 cm broad, of the upper ones narrower, stem-leaves reduced gradually to a lanceolate sheath, with short, subulate lobes. Central umbels peduncled; fruit unknown. — Flow. March.

M. p. Between Bîr-Mabruky and Bureyq. — **D. i.** Ekhfên: El-Gels-Mohamedîya.

Local name: kalkh.

Also known from Sinai.

397. (20.) **Anethum** Tourn.

Calyx-teeth obsolete. Fruit lenticular, surrounded by a dilated, flattened margin. Ribs filiform, the three intermediate acutely keeled, the lateral confluent with margin. Vittae as the broad as intervals, 1 in each. — Tall herbs, with dissected leaves, and yellow flowers.

A small genus widely distributed in the Mediterranean region and Europe.

1002. **Anethum graveolens** L. Spec. Plant. I (1753), p. 377. — Boiss. Flor. Or. II, p. 1026. — Rchbch. Ic. XXI, tab. 127. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 475. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — An annual herb, 30—50 cm high, glabrous. Leaves bipinnatisect into long, setaceous lobes. Umbels many-rayed; involucre and involucel 0; fruit elliptical. — Flow. March to April.

N. d. N. f. N. v. O. Siwa; Little Oasis; Farâfra; Dakhel; Great Oasis.

Local name: kerâwiâ; generally: shebet; shebît.

Also known from Algeria, Tunisia, Tripolitania, Europe, Caucasia and Persia.

398. (21.) **Tordylium** Linn.

Leaves dissected. Umbels compound, with general and partial involucres. Flowers white or pink, the outer petals often larger.

Fruits flattened from front to back, with a single thick border (splitting only by the separation of the carpels), and covered with stiff hairs or tubercles. Carpels broad, with the ribs scarcely visible, and 1 or 3 vittas under the interstices.

A small genus, chiefly from the Mediterranean region, with the appearance of Caucalis, but readily known by the flat fruit.

1003. **Tordylium aegyptiacum** (Lam.) Boiss. Flor. Or. II (1872), p. 1030. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Hasselquistia aegyptiaca L. Amoen. IV, p. 270. — An annual herb, 30—40 cm high, or sometimes somewhat more, sparingly hirsute, dichotomously branched from the base. Leaves puberulent, oblong-ovate in outline, pinnatipartite into ovate segments, those of the lower leaves crenate-lobed, of the upper ones incised-dentate. Bracts of the involucel setaceous, somewhat shorter than the umbellet; marginal flowers larger, radiating; fruit round, 1 cm in diameter, with finely tubercled and sparingly papillose disk, and glabrous, moderately wrinkled margin. — Flow. March to April.

M. ma. Mariut; Alexandria.

Also known from Syria and Mesopotamia.

399. (22.) **Zozimia** Hoffm.

Calyx 5-toothed. Fruits with a tumid margin, the space between the seed and margin hyaline. Ribs very slender, the lateral remote, near the margin. Oil-tubes 1, occupying the whole of each interval, the commissural 2, near together. — Monocarpic or perennial, pubescent or hirsute herbs, with dissected leaves and white flowers.

A small genus of only a few species widely distributed in the Mediterranean region.

1004. **Zozimia absinthiifolia** (Vent.) DC. Prodrom. IV (1828), p. 195. — Boiss. Flor. Or. II, p. 1037. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 477. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers. Flor. Rhinecol., p. 797 no. 123. — Heracleum absinthiifolium Vent. Choix, tab. 22. — Zozimia orientalis Hoffm. Gen. Umbell., tab. 4. — Heracleum tomentosum Smith Prodrom. Flor. graec. I, p. 192. — A biennial herb, 20—60 cm high or sometimes somewhat more, more or less greyish-pubescent; root thick, fusiform; neck densely fibrous; stems thick, often reduced to stout peduncles, springing from the root. Leaves oblong-lanceolate in outline, 2—3 pinnatisect into oblong lobules, 2—4 mm long. Umbels many-rayed; petals not radiating, fruit orbicular to elliptical, 5 mm to 1 cm long, retuse at the apex. — Flow. March to April.

D. i. Wady-el-Arîsh. — **D. a. sept.** Gebel Umm Khasheyba near Suez; Everywhere in the Northern Galala.

Local name: kalkh.

Also known from Sinai and Syria.

400. (23.) **Malabaila** Tausch.

Calyx-teeth minute; petals yellow oval, with a filiform inflected acumen, emarginate, slightly hairy outside. Filaments longer than the petals. Stylopodia convex-conical; surrounded by a slightly waved margin. Fruit obcordate-oblong, flatly and dorsally compressed, surrounded by a wide somewhat thickened margin, cordate at the apex, with the stylopods in the notch, which extends about as high as the margin of the fruit, glabrous, wider at base than the pedicel; primary ridges delicate, except the winged marginal ones. Vittae solitary between the primary ridges, equal, reaching $^2/_3$ way down the fruit, broad, clearly seen from outside; 2 vittae in each commissural face. Carpophore bipartite. Seed flat. — Perennial erect tall herbs. Leaves pinnate, with incise-dentate ovate usually acute pinnae. Umbels terminal and subterminal, regularly compound, of several primary and many secondary rays; involucre of 0, 1 or few bracts, and involucels of many linear-acute bracteoles.

A genus of a few species occurring in Eastern Africa, South-east Europe, and Western Asia.

1005. **Malabaila suaveolens** Coss. in Bull. Soc. Bot. Franc. XIX (1872), p. 82. — Tordylium suaveolens Delile Illustr. Flor. d'Eg., tab. 63 fig. 13. — Malabaila pumila Boiss. Flor. Or. II, p. 1058. — Barbey Herb. au Levant, tab. VIII. — Sickenberg. Contrib. Flor. d'Eg., p. 240. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 478. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 650 no. 139. — A perennial herb, puberulous-canescent with a long vertical fleshy root. Leaves small triangular in outline bipinnatisect, primary divisions sessile, segments minute oblong partite in ovate obtuse limb; umbels shortly pedunculate, 5-rayed; fruits orbiculate, glabrous, emarginate; commissures glabrous with 4 vittae. — Flow. March to April.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **D. a. sept.** Northern and Southern Galala.

Local name: shamar-el-gebel; telghûdy (Ascherson); ammishy (Schweinfurth).

Also known from Cyrenaica.

401. (24.) **Orlaya** Hoffm.

Calyx-margin 5-toothed. Fruit oblong, dorsally compressed. Primary ribs filiform, bristly, secondary ones keeled, with 1—3 rows of prickles of equal length, or the outer longer. Vittae 1 under each secondary rib. Inner face of albumen flat. — Annual herbs, with white flowers.

A small genus of only a few species in the Mediterranean region.

1006. **Orlaya maritima** Koch Gen. Umbell. (1824), p. 79. — Boiss. Flor. Or. II, p. 1071. — Rchbch. Ic. XXI, tab. 205 fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 479. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 651 no. 140. — Aschers. Flor. Rhinocol., p. 797 no. 124. — An annual plant, 10—30 cm long, grey-velvety, branching from the neck. Leaves ovate-oblong in outline, 2—3-pinnatisect into minute, ovate-oblong, obtuse lobes. Rays unequal, 3—5; bracts of the involucre and involucel filiform, or the former dissected into filiform lobes; fruit elliptical, 1 cm long, 6 mm broad; prickles in 1—2 rows, triangular at the base, barbed at the tip, usually shorter than the breadth of the seed. — Flow. March to April.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Abusîr; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta. — **D. i.** Scattered in the desert.

Local name: shamar-el-gebel (Ascherson).

Also known from all the other parts of the Mediterranean region.

402. (25.) **Ammodaucus** Coss. and Dur.

Calyx 5-toothed. Petals equal, subemarginate. Fruits oblong, lenticular-compressed from the back; mericarp with primary and secundary juges; primary ridges 5, filiform or sparingly setiferous. Carpophor bipartite. Seeds convex from the back, complanate from the face. — Small, annual herbs. Leaves bi- or tripinnatisect, lobes linear, fleshy. Umbels bi- or triradiate; leaves of the involucrum pinnatipartite or tripartite. All the flowers bisexual with white petals.

A small genus of only one species in the Sahara-region.

1007. **Ammodaucus leucotrichus** Coss. and Dur. ap. Kralik Plant. alger. Select. exsicc. (1858), no. 42. — Coss. and Dur. in Soc. Bot. Franc. VI (1859), p. 393. — Aschers.-Schweinfurth Ill. Flor. d'Eg., p. 81 no. 483. — Torilis leucotricha Coss. and Dur. olim ap. Coss. Voy. Bot. Alg. in Ann. Sc. Nat., Sér. IV Vol. IV p. 284. — Small, annual plant, 15—20 cm high. Stems slightly striate, glabrous, branching from the base. Leaves green, petioled, somewhat sheathing

at the base, bi- or tripinnatisect, lobes linear, thick, obtuse or mucronulate. Umbels opposit the leaves, 1—3-radiate. Involucre with 2—3 bracts. Umbellules many-radiate. Calyx-lobes with lanceolate tooths, subulate at the apex. Styles half as long as the stylopode. Fruit 5—6 mm broad, setiferous. — Flow. April to May.

D. I. Between Alexandria and Siwa.

Also known from Morocco, Algeria and Tunisia.

403. (26.) **Daucus** Linn.

Calyx-teeth acute; petals unequal, obovate, with inflected acumen, deeply emarginate, or the larger ones bilobed. Stylopodia shortly conical. Fruit ovoid, somewhat compressed laterally or subterete; 5 primary ridges not prominent, with 2 faint rows of short thin patent hairs; 4 secondary ridges very prominent, armed with long spines hooked at the end or glochidiate. Vittae solitary under the secondary ridges, and 2 contiguous in the commissural face of each mericarp. Carpophore undivided. Seed sub- or $^1/_2$-terete, somewhat hollowed in the middle of the face, but not deeply sulcate. — Annual or biennial herbs with pinnately decompound leaves. Umbels regularly compound; involucre and involucels of several dissected or linear leaves.

A large genus, chiefly Mediterranean, and extending to temperate Asia and North Africa, America, and Australia.

A. Prickles often connate for one-fourth their length . 1. **D. Broteri.**
B. Prickles short-connate at the base, barbed. Leaves dissected into minute lobes.
I. Bracts of the involucre linear, entire or trifid . 2. **D. litoralis.**
II. Bracts of the involucre linear-setaceous, setulose 3. **D. guttatus.**
III. Bracts of the involucre pinnately dissected into setoceous lobes . . . . . 4. **D. aureus.**
C. Prickles free at the base. Lobes of the leaves often 1 cm long or more . . . . . 5. **D. Carota.**

1007a. (1.) **Daucus Broteri** Ten. Syll. Plant. (1831), p. 591. — Boiss. Flor. Or. II, p. 1073. — Aschers.-Schweinf. Illustr. Flor. d'Eg., Supplem. p. 759. — An annual plant, 10—40 cm high, or sometimes somewhat more, bristly, divaricately branching from the base. Leaves oblong-lanceolate in outline, 2-pinnately dissected into minute, oblong-linear, entire or 2—3-fid lobules. Umbels small; rays 5 mm to 2 cm long; bracts of the involucre, linear, trifid, of the involucel linear, subulate, simple or three-forked; fruits 6 mm long, 4 mm broad; ribs somewhat remote; prickles longer than the diameter of the seed. — Flow. March.

M. p. El-ʿArîsh. — **N. d.** Mahsama.

Also known from Sinai and Syria.

1008. (2.) **Daucus litoralis** Sibth. and Smith Flor. Graec. I (1806), p. 65. — var. **Forskâlei** Boiss. Flor. Or. II (1872), p. 1075. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 480. — Aschers.-Schweinf. Ill. Flor. d'Eg. Supplem., p. 759. — Aschers. Flor. Sirbon., p. 811 no. 17. — Aschers. Flor. Rhinocol., p. 797 no. 127. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 651 no. 141. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Daucus pubescens Koch Unbellif., p. 77. — Caucalis glabra Forsk. Flor. aeg.-arab., p. 206. — Del. Illustr. Flor. d'Eg., tab. 23 fig. 2. — Orlaya anisopoda Boiss. Diagnos. Plant. Orient., Ser. I fasc. X p. 46. — An annual plant, 30—40 cm high or sometimes somewhat more, glabrous or retrorsely hairy. Leaves oblong in outline, 2-pinnatisect, segments dissected into simple or 2—3-fid, fleshy, minute, oblong lobes. Rays 7—9, rigid, 5 mm to 3 cm long; bracts of the involucre linear, entire or trifid, of the involucel linear-lanceolate, with membranous margin, bristly; fruits 6 mm long, 4 mm broad, including the prickles; prickles longer than the diameter of the seed. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakhalla; Ras-el-Kenâ'is; Mariut; Montaza; Alexandria-West and -East; Abukîr. — **M. p.** Gels-Mohammedîya; Rosetta; Damietta. — **N. d. N. v.** Often on way sides. — **D. l.** Rare in the desert-sands. — **D. i.** Gebel Ekfên.

Local name: gazar.

Also known from Arabia Petraea and Syria.

1009. (3.) **Daucus guttatus** Sibth. and Smith Flor. Graec. I (1806), p. 174. — Daucus setulosus Guss. ap. DC. Prodrom. IV, p. 211. — Boiss. Flor. Or. II, p. 1075. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 481. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 142. — An annual plant, 30—60 cm high, or sometimes somewhat more, retrorsely scabrous; stems erect and ascending. Lower leaves oblong in outline, 2-pinnatisect, the segments pinnately parted into short, linear-oblong, simple or bifid lobes. Umbel small, few-rayed; bracts of the involucel linear-setaceous, setulose; petals radiating; central flower sometimes sterile; prickles bristle-like, twice as long as the diameter of the seed. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakalla; Alexandria-West.

Also known from Cyrenaica, Southern Europe and Syria.

1010. (4.) **Daucus aureus** Desf. Flor. Atlant. I (1789), p. 242 tab. 61. — Boiss. Flor. Or. II, p. 1076. — Aschers.-Schweinf. Ill. Flor. d'Eg. Supplem., p. 759. — Aschers. Flor. Rhinocol., p. 797 no. 128. — An annual plant, 1—1,5 m high, setulose, drying yellow; stem somewhat corymbose. Leaves triangular-oblong in outline, much

dissected into oblong and linear lobes, the secondary axes of the divisions at right angles to the primary. Umbels many-rayed; bracts of the involucre pinnately dissected into setaceous lobes, shorter than the rays, bracts of the involucels trifid, as long as the flowers; fruit 4 mm long, 2 mm broad, including the prickles; prickles lanceolate, twice as long as the diameter of the seed. — Flow. March to April.

M. p. El-ʿArîsh; el-Grady. — **N. v.** Heliopolis near Cairo. — **D. i.** Habwa, recently introduced.

Also known from Algeria, Southern Europe and Syria.

1011. (5.) **Daucus Carota** L. Spec. Plant. I (1753), p. 348. — Boiss. Flor. Or. II, p. 1076. — Rchbch. Ic. XXI, tab. 159. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81 no. 482. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — A biennial plant, 1—1,5 m high or sometimes somewhat more, branching from the base, scabrous. Leaves triangular to oblong in outline, 2—3-pinnatisect into oblong-lanceolate, incised-dentate segments, those of the upper leaves linear-lanceolate. Umbel with very numerous rays, at length contracted into a nest-like form; bracts of the involucre trifid or pinnate, of the involucel linear, white-margined, entire or 2—3-fid; petals radiating; central flower sterile, purple; fruits 4 long, 3 mm broad, including the prickles; prickles setaceous, as long as the diameter of the seed or longer, with 1—3 recurved barbs. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. Cultivated everywhere and often subspontaneous.

Local name: gazar; djazar.

Probably an original native of the sea-coasts of Southern Europe, but of very ancient cultivation; and sows it self most readly, soon degenerating to the wild form with a slender root, and now most abundant throughout Europe, the Mediterranean basin and Asia.

var. **Boissieri** Schweinfurth, Wittmack in Festschrift zu Aschersson LXX. Geburtstag 1904, p. 327. — Daucus maximus Boiss. Flor. Or. II, p. 1076 not Desf.-Root purple. — Flow. March to April.

M. ma. N. d. N. v. O. Cultivated and subspontaneous.

Local name: gazar beledy.

Also known from the other parts of the Mediterranean region.

404. (27.) **Torilis** Adans.

Calyx 5-toothed. Fruit laterally compressed. Primary ribs 5, setulose, secondary 4, hidden by the numerous prickles which occupy

the whole interval. Vittae 1 under each secondary rib. Inner face of the albumen grooved. — Annual, setulose herbs, with white or reddish flowers.

A small genus of only a few species in Europe and the Mediterranean region.

A. Umbels long peduncled.
  I. Upper leaves long . . . . . 1. **T. infesta.**
  II. Upper leaves gradually diminishing . . . . . 2. **T. neglecta.**
B. Umbels nearly sessile . . . . . 3. **T. nodosa.**

1012. (1.) **Torilis infesta** (L.) Hoffm. Gen. Umbellif. (1824), p. 89. — Boiss. Flor. Or. II, p. 1082. — Rchbch. Ic., tab. 123 fig. 2007. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 485. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Caucalis helvetica Jacq. Hort. Vind. III, tab. 16. — Torilis helvetica Gmel. ap. Boiss. l. c. — Torilis purpurea Ten. Flor. Nap., tab. 131. — Torilis Friedrichsthalii Cesati in Friedr. Reise, p. 281. — An annual plant, 30—60 cm high or sometimes somewhat more, sparingly divaricate above. Lower leaves bipinnatisect into ovate or lanceolate, incised-dentate segments, the terminal one of the upper leaves much longer. Umbels long-peduncled, 2—8-rayed; fruit oblong, 6 mm long, 4 mm broad, including the prickles. — Flow. March to April.

N. d. Alexandria; Sharabas.

Also known from Middle and Southern Europe.

1013. (2.) **Torilis neglecta** Roem. and Schult. System. VI (1820), p. 484. — Boiss. Flor. Or. II, p. 1083. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 1083. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Scandix infesta Jacq. Flor. Austr., tab. 46 not Linn. — Torilis chlorocarpa Spreng. Syst. I, p. 898. — Torilis syriaca Boiss. and Bl. Diagn. Plant. Orient., Ser. I fasc. II p. 98. — An annual plant, 50 cm to 1 m high, or more, divaricately branched. Leaves bipinnatisect, segments rather large, oblong, incised-dentate; the upper leaves gradually diminishing. Umbels long-peduncled; rays 2—12; flowers radiating; fruit 5 mm long and broad, with both mericarps densely prickly, or with one mericarp prickly and the other tubercled. — Flow. March to April.

M. ma. N. d N. v. Common in waste and often in sandy places.

Local name: khelle; gazar-esh-sheytâny (Forsk.); qumeyley; qumely (Delile).

Also known from the Canarian Islands, Southern Europe, Syria and Palestine.

1014. (3.) **Torilis nodosa** Gaertn. De fructib. I (1788), p. 82 tab. 20 fig. 6. — Boiss. Flor. Or. II, p. 1082. — Rchbch. Ic. XXI, tab. 167 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 487. — Aschers.-Schweinf. Prim. Flor. Marmaric., p. 651 no. 143. — Tordylium nodosum L. Spec. Plant. I, p. 361. — Caucalis nodosa Desf. Flor. Atlant. I, p. 236. — Caucalis leptophylla Viv. Flor. Libyc., p. 16 not Linn. — An annual plant, 30—50 cm high or more, stems decumbent, more or less zigzag, divaricately branched. Leaves bipinnatisect into oblong-ovate, incised-dentate to pinnatipartite segments. Umbels sessile or short-peduncled, obsoletely 2—3-rayed, clustered; flowers minute, not radiating; fruit 3 mm long and broad, including the prickles, nearly sessile, the inner mericarp often papillose. — Flow. February to March.

M. ma. N. d. N. f. O. Often in deep sandy places and on way sides.

Also known from the other parts of the Mediterranean region, Syria, Mesopotamia and Persia.

405. (28.) **Caucalis** Linn.

Calyx-teeth rather prominent, lanceolate-acute or obsolete. Petals usually unequal, oval, with inflected acumen; stylopodia thick. Fruit ovoid, somewhat compressed laterally and narrowed at the commissure; 5 primary ridges not prominent, filiform or wider, covered with short appressed bristles; 4 secondary ridges predominating, armed with longer patent bristles, glochidiate or forked at the end. Vittae solitary under secondary ridges. Carpophore undivided or 0. Seed subterete, deeply sulcate on the face. — Annual or biennial herbs. Leaves pinnately decompound. Umbels of few rays or subcapitate small, terminal or opposite the leaves. Involucre of 0, 1, or several bracts; involucels of many bracteoles. Flowers white or dark purple.

A moderate sized genus, chiefly found in the Mediterranean region, but some species are widely scattered over the world.

A. Prickles in one row . . . . . **C. tenella.**
B. Prickles in 2—3 rows . . . . . **C. leptophylla.**

1015. (1.) **Caucalis tenella** Delile Illustr. Flor. d'Eg. (1813), p. 58 tab. 21 fig. 3. — Boiss. Flor. Or. II, p. 1084. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 488. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 651 no. 143. — An annual plant, 30—60 cm high, or sometimes somewhat more, branches ascending. Leaves oblong in outline, tripinnatisect into linear-setaceous lobes. Umbels long-peduncled, with 5—9, unequal rays; fruit oblong in outline, 5 mm long, 2 mm broad,

including the prickles; prickles thrice as long as the linear mericarp; styles very short. — Flow. March to April.

M. ma. Marmarica: Matruqa; Ras-el-Kena'is; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr, common in deep sand.

Also known from Cyrenaica, Greece, Asia Minor, Syria, Palestine, Mesopotamia and Persia.

1016. (2.) **Caucalis leptophylla** L. Spec. Plant. I (1753), p. 347. — Boiss. Flor. Or. II, p. 1084. — Aschers. Flor. Rhinocol., p. 797 no. 130. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — Torilis leptophylla Rchbch. Ic. XXI, tab. 169 fig. 1. — An annual plant, 20—50 cm high or more, dichotomously branched. Leaves oblong in outline, bipinnatisect into linear lobes. Umbels with short or moderately long, thick peduncles, and 2—4, short, thick rays; fruit oblong, 5 mm long, 3 mm broad, including the prickles; prickles in 3 rows, twice as long as the diameter of the mericarp; stigmas sessile. — Flow. February to March.

M. p. El-'Arîsh; Feqîrah.

Also known from the other parts of the Mediterranean region, Mesopotamia and Persia.

406. (29.) **Cuminum** Linn.

Calyx-teeth subulate, unequal. Fruit oblong, tapering at the base and apex, somewhat compressed laterally, and somewhat constricted at commissure. Primary ribs filiform, obtuse, secondary as prominent or more so, more or less long-setulose. Oil-tubes under each secondary rib 1, thick. Stylopodia conical, tapering into rigid styles. Inner face of the seed somewhat concave. — Annual herbs, with minute, white or reddish flowers.

A single species, with the short fruit of an *Apium or Cicuta*, but differing essentially in the deeply furrowed albumen.

1017. **Cuminum Cyminum** L. Spec. Plant. I (1753), p. 365. — var. **hirtum** Boiss. Flor. Or. II (1872), p. 1080. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 484. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Aschers. Flor. Rhinocol., p. 797 no. 129. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — An erect, branching annual or biennial, 60—150 cm high or sometimes more, usually glabrous, and emitting a nauseous smell when bruised. Leaves large and much divided into numerous small ovate or lanceolate deeply cut segments; the upper leaves gradually smaller and less divided. Umbels terminal, not large for the size of the plant, of 10—15 rays. Bracts short and lanceolate; those of the general

involucre variable in number; those of the partial ones almost always 3, turned to the outside of the umbel. Fruit about 5 mm long. — Flow. March to April.

M. p. El-ʿArîsh. — **N. v. O.** Cultivated everywhere and often subspontaneous.

Local name: kammûn.

Cultivated and subspontaneous everywhere in Northern Africa. Probably origin in Algeria, Spain and Turkestania.

Metachlamydeae.

Sympetalae.

Flowers with both calyx and corolla. Petals mostly connate often tubular-like.

Ericales.

Herbs, shrubs or trees with simple leaves with coriaceous texture. Flowers 4—5-merous, obdiplostemonous, bisexual, actinomorphous. Petals connate, rarely free. Filaments hypogynous or epigynous, rarely connate at the base with the petals. Carpels 2—5 merous. Ovary inferior or superior. — Seeds with one integumentum.

83. Ericaceae.

Flowers regular (or nearly so), bisexual. Calyx free, 4—5-fid or -partite. Corolla hypogynous, deciduous or marcescent, tubular, campanulate or urceolate; mouth shortly 4—5-lobed. Stamens hypogynous or very shortly adnate to the corolla-tube, as many or twice as many as corolla-lobes; filamentsf ree; anthers dehiscing by terminal pores. Ovary 4—5-celled (in our species), free; style 1; stigma terminal. Ovules indefinite, few or many. Fruit capsular, loculicidally dehiscent, pulpy or drupaceous. Seeds albuminous. — Shrubs, undershrubs usually wiry, or small trees. Leaves alternate or whorled, usually persistent, exstipulate. Inflorescence various.

A considerable Natural Order, very sparingly represented in Africa, excepting in the Cape region.

407. **Arbutus** Linn.

Trees or shrubs, with evergreen and coriaceous alternate petiolate leaves, and white or flesh-coloured flowers in a terminal cluster of racemes or panicles. Bracts and bractlets scaly. Calyx

small, 5-parted. Corolla urceolate with 4—5 small recurved teeth. Ovary on an hypogynous disk, 4—5-celled; ovules crowded on a fleshy placenta projecting from the inner angles of each cell. Style rather long; stigma obtuse. Fruit a many-seeded berry.

A small genus of only a few species, widely distributed throughout the Mediterranean region.

1018. **Arbutus Unedo** L. Spec. Plant. I (1753), p. 395. — Boiss. Flor. Or. III, p. 966. — Rchbch. Ic. XVII, tab. 116 fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102. — Shrub 1—3 m high, branches straight, with rough, rusty bark. Leaves obovate to elliptical-oblong, 30—90 cm long, serrate, acutish or obtuse. Racemes somewhat panicled, nodding, glabrous; berries few, 1—1,6 cm in diameter, rough-warty, scarlet, edible. — Flow. March to April.

M. ma. Near Mandara, naturalized.

Also known from the other parts of the Mediterranean region.

Primulales.

Herbs, shrubs, trees or vines. Leaves alternate or opposite, sometimes all basal: blades mostly entire. Flowers bisexual or polygamo-dioecious, variously disposed. Calyx of 4-several partially united sepals. Corolla of 4-several distinct or partially united petals, or wanting. Androecium of as many stamens as there are petals or sepals, and sometimes accompanied by as many staminodia, mainly partially adnate to the corolla. Gynoecium of 4—6 united carpels, or rarely more. Ovary superior, or mainly so, mostly 1-celled. Styles distinct or united. Fruit capsular or drupaceous, or rarely an achene or an utricle.

84. Primulaceae.

Calyx usually of 5, sometimes 4, 6 or 7 divisions or teeth, free or rarely the tube shortly adnate to the ovary. Corolla usually regular, more or less devided into as many lobes or teeth as divisions of the calyx, imbricate and often contorted in the bud, rarely wanting. Stamens as many as lobes of the corolla, inserted in the tube or at the base, opposite the lobes. Ovary 1-celled, with 1 or more ovules attached to or immersed in a central placenta, usually quite free, thick and globular, rarely ovoid and connected with the top of the cavity. Style single, with a capitate stigma. Fruit a capsule, usually dehiscent. Seeds albuminous. — Herbs or very rarely undershrubs. Leaves opposite or alternate, undivided except when growing under water, without stipules. Flowers axillary or terminal.

A widely spread Order, inhabiting chiefly the northern hemisphere, and often rising in high mountains to great elevations, with a few southern species, and but very few within the tropics, except in mountain districts.

A. Flowers regular; calyx not spiny.
  I. Capsule superior, dehiscent above or down its whole length by valves . . . . . 1. **Asterolinum.**
  II. Capsule superior, opening by a lid . . . . . 2. **Anagallis.**
  III. Capsule half-superior, opening by valves . . . 3. **Samolus.**
B. Flowers zygomorphous; calyx spiny . . . . . 4. **Coris.**

408. (1.) **Asterolinum** Hffg. and Link.

Calyx 5-parted. Corolla one-third to one-fourth as long as the calyx, with short tube, and short, 5-parted, campanulate limb. Stamens 5, with filaments longer than the corolla. Capsules enclosed in persistent calyx, 5-valved, 2—3-seeded. Seeds roughened at back, convex at the face, umbilicate. — Dwarf annuals.

A small genus widely distributed in the Mediterranean region.

1019. **Asterolinum stellatum** Hffg. and Link Flor. Portug. I (1809), p. 332. — Boiss. Flor. Or. IV, p. 10. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 658 no. 213. — Rchbch. Ic. XVII, tab. 45 fig. IV—V. — An annual plant, 10 cm high or sometimes somewhat more, stems filiform, simple or branching from the base. Leaves 5 mm to 1 cm long, sessile, linear-lanceolate, opposite. Pedicels solitary, axillary, shorter than the leaves, at length nodding; calyx-lobes stellate, linear-lanceolate, aristate, much longer than the capsule. — Flow. March to April.

M. ma. Marmarica: Matruqa; Alexandria-West.

Also known from the other parts of the Mediterranean region.

409. (2.) **Anagallis** Linn.

Calyx free, deeply 5-cleft. Corolla rotate or companulate, deeply 5-lobed. Stamens 5. Capsule opening transversely by a circular fissure across the middle (circumciss). Placenta globular. — Annuals or perennials, with creeping procumbent or diffuse stems. Leaves opposite or alternate. Flowers pink red or blue, axillary and solitary.

A small genus, widely dispersed over the temperate and warmer regions of the globe, although in some countries only as introduced weeds.

A. Leaves ovate . . . . . 1. **A. arvensis.**
B. Leaves orbicular . . . . . 2. **A. latifolia.**

1020. (1.) **Anagallis arvensis** L. Spec. Plant. I (1753), p. 211. — Boiss. Flor. Or. IV, p. 6. — Rchbch. Ic. XVII, tab. 41 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 103 no. 674. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 658 no. 212. — Aschers. Flor. Rhinocol., p. 806 no. 173. — Sickenberg. Contrib. Flor. d'Eg., p. 253. — Anagallis phoenicea Lam. Flor. Franc. II, p. 285. — Anagallis coerulea Lam. Flor. Franc. II, p. 285. — Anagallis arvensis var. coerulea Boiss. Flor. Or. IV, p. 6. — A neat, much branched, procumbent annual, 12 cm to near 30 cm long, with opposite, broadly ovate, sessile, and entire leaves. Pedicels considerably longer than the leaves, and rolled back as the capsule ripens. Calyx-divisions pointed. Corolla rotate, usually of a bright red within, but occasionally pale pink, or white, or bright blue. — Flow. March to April.

M. ma. Marmarica: Matruqa, along the coast to Abukîr. — **M. p.** Rosetta; el-ʿArîsh. — **N. d. N. f. N. v. O.** Everywhere common.

Local name: sabûngheyt; qunfude (Ascherson); ʾaïn-el-djemel (Roth); lubbêne (Schweinf.); umm-el-leben.

Cosmopolitan species.

1021. (2.) **Anagallis latifolia** L. Spec. Plant. I (1753), p. 212. — Boiss. Flor. Or. IV, p. 1. — Rchbch. Ic., tab. 41. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 103 no. 675. — Sickenberg. Contrib. Flor. d'Eg., p. 253. — Anagallis arvensis var. latifolia Post Flor. Sin. Syr. and Palest., p. 517. — A neat annual plant, much branched from the base, 12—35 cm long or sometimes somewhat longer, with opposite orbicular, sessile and entire leaves. Pedicels longer than the leaves, and rolled back as the capsule ripens. Calyx-divisions pointed. Corolla rotate, usually of a bright red within, but occasionally pale pink, or white, or bright blue. — Flow. February to March.

M. ma. N. d. N. v. O. Common everywhere on way-sides and along the irrigation-canals.

Also known from most parts of the World.

410. (3.) **Samolus** Linn.

Calyx campanulate; tube adnate to the ovary; limb 5-fid. Corolla shortly campanulate, 5-lobed, with staminodia or squamae alternating with the lobes. Stamens short, inserted in the tube of the corolla. Ovary inferior; apex free. Capsule many-seeded, dehiscing by 5 apical valves. — Leaves alternate. Flowers small, white.

A small genus, chiefly of the Southern Hemisphere, excepting the following, which is cosmopolitan.

1022. **Samolus Valerandi** L. Spec. Plant. I (1753), p. 243. — Boiss. Flor. Or. IV, p. 5. — Rchbch. Ic. XVII, tab. 42 fig. 3. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 673. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 658 no. 211. — DC. Prodrom. VIII, p. 73. — A glabrous erect herb, from a few cm to 30 or 90 cm in height, simple or branched. Basilar leaves obovate or elliptical, obtuse, narrowed into a petiole; cauline ones obovate or oblanceolate, more shortly petiolate. Flowers on slender ascending or spreading pedicels, with a minute bract near the middle, in terminal loose racemes. — Flow. January to March.

Local name: ʾarîdeh; sabûn ʾarab (Ascherson); semniâ seteyn (Roth).

M. ma. Marmarica; Matruqa to Abukîr. — **M. p. N. d. N. f. N. v. O. D. a. sept.** Along irrigation ditches.

One of the most widely diffused Phanerogams.

411. (4.) **Coris** Tourn.

Calyx tubulose-campanulate oblique, limb duplex, the outer one dentate, teeth unequal recurved bilabiate; the inner one 5-lobed, the lobes alternate with the outer teeth, patule, soon connivent, unequal, the two upper-ones larger. Corolla tubulose, hinb 5-lobed, bilabiate, lobes emarginate. Stamens 5, inserted on the corolla-tube and shortly exerted. Filaments unequal, glandulose at the base. Capsule globose, 5-valved, 5-spermed.

A small genus of only two species in Spain and the Western Mediterranean region.

1023. **Coris monspeliensis** L. Spec. Plant I (1753), p. 252. — Rchbch. Ic. XVI, tab. 76 fig. IV. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 163 no. 676. — Sickenberg. Contrib. Flor. d'Eg., p. 253. — Stapf Addit. Flor. Marmar., p. 368. — A small shrub, 30—60 cm high or sometimes somewhat more. Stems adscendent, branching from the base, densely puberulous. Leaves alternate, linear, obtuse, coriaceous, pale green, glabrous, reflexed-falcate. Flowers subsessile in a dense terminal spike. Calyx membranaceous, puberulous; teeth of the outer one 11, linear-subulate, purplish, recurved; of the inner ones triangular-ovate, fimbriate; corolla 5—6 mm thick, rose-coloured, as long as the tube. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East.

Also known from Tunisia, Algeria, Morocco, Southern Europe.

85. Plumbaginaceae.

Calyx tubular, often enlarged and scarious or petal-like at the top, with 5 prominent ribs usually ending in as many teeth. Corolla regular, of 5 petals, free or more or less united, contorted-imbricate in the bud. Stamens 5, inserted at the base of the corolla or petals, opposite to them, and often more or less adnate to them; anthers versatile, 2-celled, the cells opening in longitudinal slits. Ovary 1-celled, with 1 ovule suspended from a filiform placenta erect from the base. Styles 5, distinct or united at the base. Capsule 1-seeded, indehiscent or opening irregularly. Seeds solitary; testa thin; albumen rarely abundant, usually scanty or none; embryo straight, radicle superior. — Herbs or rarely undershrubs or shrubs. Leaves radical or alternate, entire or lobed. Flowers in terminal heads spikes or panicles.

A small family extending over the greater parts of the world.

A. Styles free from the base or above. Fruit rupturing at the base or opening by a lid.
  I. Calyx 5-nerved. Styles glabrous. Stigmas filiform . . . . . 1. **Statice.**
  II. Calyx nerveless. Styles glabrous. Stigmas filiform . . . . . 2. **Limoniastrum.**
B. Styles connate to the tip. Fruit dehiscent by valves at the base . . . . . 3. **Plumbago.**

412. (1.) **Statice** Linn.

Calyx more or less expanded at the top into a dry, membranous, coloured and slightly 5-lobed limb, each lobe traversed by a green or dark nerve. Petals slightly united at the base. Styles free, ending in linear-terete stigmas. Fruit included in the calyx. Seed more or less albuminous. — Herbs or rarely undershrubs. Leaves usually radical. Flowers solitary or 2 or 3 together in little spikelets, forming one-sided spikes, arranged in dichotomous or trichotomous panicles, or rarely in simple spikes.

The largest genus of the Order, ranging chiefly over maritime districts in the northern hemisphere, with very few southern species.

A. Petals free or only connate at the base.
  I. Floral branches 2—3-auricled, obpyramidal. Calyx-insertion erect, limb broad, plaited. Leaves sinuate to pinnatifid, rosetted . . . . . 1. **S. Thouini.**
  II. Branches terete or angled. Calyx-insertion oblique. Peremial herbs.

a) Lower bracts membranous at the margin.
1. Leaves oblong or oblong-lanceolate . . . 2. **S. Limonium.**
2. Leaves obovate . . . . . 3. **S. delicatula.**
b) Lower bracts hyaline.
1. Furfuraceous-puberule plants . . . . . 4. **S. pruinosa.**
2. Glabrous plants.
α) Leaves oblong or oblong-lanceolate, acute . . . . . 5. **S. axillaris.**
β) Leaves obovate, obtuse . . . . . 6. **S. echioides.**
B. Corolla gamopetalous . . . . . 7. **S. tubiflora.**

1024. (1.) **Statice Thouini** Viv. Cat. Hort. Negro (1802), p. 34 and Flor. Libyc., p. 18 tab. 11 fig. 1. — Boiss. Flor. Or. IV, p. 858. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 838. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 254. — Statice aegyptiaca Pers. Syn. I, p. 334. — Del. Illustr. Flor. d'Eg., tab. 25 fig. 3. — An annual plant, 20 to 50 cm high or more, glabrous. Scapes more or less 3-winged, one of the wings ending at the nodes in a short, blunt, oblong appendage; wings of floral branches 2—4 cm broad, reticulate; axis nearly naked; calyx-limb white, cleft to the middle into 5, triangular lobes, with bristle in sinus; corolla yellow. — Flow. February to March.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **D. i.** Wady-el-Hagg; desert-el-Tîh.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea, Palestine and Persia.

1025. (2.) **Statice Limonium** L. Spec. Plant. I (1753), p. 394. — Boiss. Flor. Or. IV, p. 858. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 839. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Statice Limonium α genuina and γ macroclada Boiss. in DC. Prodrom. VIII, p. 120. — Stock short and thick, with tufts of radical leaves from 5—10 or 16 cm long, obovate or oblong, quite entire, glabrous, and narrowed at the base into a long stalk; the midrib is alone prominent when fresh, but when dry the lateral reticulate veins branching from it distinctly appear. Flower-stem erect, leafless, 9—30 cm or even more high, repeatedly forked, so as to form a broad corymbose panicle, with a membranous bract at each division. Flowers numerous, in short, rather loose spikes at the ends of the branches, with a green bract, coloured at the edge, under each flower. Calyx green at the base, dry, scarious, and of a pale purple in its upper part, with 5 short, broad teeth, which are often slightly toothed or jagged. Petals of a bluish purple, at the time of flowering rather longer than the calyx, but the latter becomes subsequently

much enlarged, so as to assume the appearance of a corolla concealing the real one. — Flow. March to April.

M. ma. Abukîr. — **M. p.** Rosetta; Damietta along the sea-coast. — **D. i.** Wady-el-Hagg.

Local name: ʾorq angibâr; lisân-et-tîn.

In maritime sands and salt-marshes, on the coasts of Western Europe, the Mediterranean, Western Asia, on the South American and Californian sea-shores.

1026. (3.) **Statice delicatula** De Girard in Ann. Scienc. Nat., ser. 3, II (1844) p. 327. — Willk. and Lange Prodr. Flor. Hisp. II, p. 377. — Statice globulariaefolia Boiss. Flor. Or. IV, p. 860 not Desf. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 840. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 255. — Statice globulariaefolia var. glauca Boiss. Voy. Esp., p. 531 tab. 155 fig. a. — Statice Raddiana Boiss. in DC. Prodrom. XII, p. 653. — A perennial plant, glaucous, glabrous. Leaves rosulate, coriaceous, obovate, acute or obtuse or mucronulate narrowed into an short petiole; scapes elongate, rigid, flexuous, dichotomously branched, corymbose-paniculate; spices 2—3-flowered; bracts white-marginate, ovate-triangular, carinate; calyx-tube appressed hairy, limb white three times shorter than the ovate, acute lobes. — Flow. March to April.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Abusîr to Abukîr along the coast in deep sand. — **M. p.** Damietta.

Also known from Spain, Algeria, Tunisia and Tripolitania.

1027. (4.) **Statice pruinosa** L. Mant. (1771), p. 59 excl. synon. — Boiss. Flor. Or. IV, p. 865. — Viv. Flor. Libyc., p. 17 tab. 27 fig. 1. — DC. Prodrom. XII, p. 662. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 841. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers. Flor. Sirbon., p. 813 no. 31. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 603 no. 256. — A perennial herb, 40—50 cm high, sometimes somewhat more, furfuraceous. Leaves soon disappearing, obovate-spathulate to obovate-cordate, tapering into a petiole. Scapes panicled with brittle, flexuous-angled branches, beset at the nodes with tawny, triangular scales; lower branches sterile, forked, jointed; spikelets 1-flowered, arranged in scorpioid, 1 – 1,5 cm long spikes; lower bracts ovate, acutish, one-fourth as long as the inner, obtuse ones; calyx-tube obconical, glabrous, as long as the obtusely 5-lobed limb; corolla purple. — Flow. January to May.

M. ma. M. p. D. l. D. i. D. a. sept. D. a. mer. Everywhere common in deep sand and often on calcarious ground of the Wadies.

Local name: melleyh (Wilkinson); generally; aryal; genemîye (Ascherson); fushfâsh; halayûn (Ascherson).

Also known from Morocco, Algeria, Tunisia, Arabia Petraea and Palestine.

1028. (5.) **Statice axillaris** Forsk. Flor. aeg.-arab. (1775), p. 58. — Boiss. Flor. Or. IV, p. 868. — Vahl Symb. I, p. 26 tab. 9. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 842. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Statice Bovei Jaub. and Spach Illustr. Plant. Or. I, tab. 86. — A glabrous, glaucous shrub, branching from the base; branches erect, fleshy, densely leafy below. Leaves flat, fleshy, oblong or lanceolate-spathulate, obtuse or acute, long attenuate, sheaths brownish oblique truncate; scapes short or elongate flexuous, sparingly branched, narrow-paniculate; spikelets two-flowered, spikes shortly pedunculate or sessile scorpioid-recurved; flowers small; bracts brownish, obtuse, narrowly-whitish marginate, the lower ones short, ovate, the upper ones thrice larger; calyx-tub rectly obconic, pilulous. — Flow. March to April.

R. Red-Sea-coast in deep sand.

Local name: shelîl (Schweinfurth; Klunzinger).

Also known from Arabia Felix.

1029. (6.) **Statice echioides** L. Spec. Plant. I (1753), p. 394. — Boiss. Flor. Or. IV, p. 870. — Rchbch. Plant. crit. II, fig. 292 and Ic. XVIII tab. 96 fig. III. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 843. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 257. Statice aristata Sibth. and Smith Prodrom. Flor. Graec. I, p. 213. — An annual glabrous plant; leaves small, obovate or oblong-spathulate, obtuse, narrowed into a petiole, tuberculate on the under surface; scapes virgate, dichotomously paniculate-branched, flexuous; branchlets elongate, patent; spikelets one-flowered rarely two-flowered; the lower bracts ovate-rotundate obtuse, small, the upper-one five times longer, coriaceous, calyx-tube small cylindrical, appressed hirtellous, limb thrice shorter than the tube, truncate, recurved. — Flow. March.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Alexandria-West.

Also known from the Mediterranean Europe.

1030. (7.) **Statice tubiflora** Delile Illustr. Flor. d'Eg. (1813), p. 25 fig. 2. — Boiss. Flor. Or. IV, p. 871. — DC. Prodrom. XIII, p. 668. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 844. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 663 no. 257. — Statice squamata Poir. Encyclop. Supplem. V, p. 237. — A perennial plant, 20—40 cm high or sometimes somewhat more, glaucous, calcarate-

tuberculate with a woody rootstock. Basilar leaves small ovate-rhombic obtuse narrowed into a short petiole. Scapes small, flexuous, articulate, branched; terminal corymb small; spikelets two-flowered elongate in short scorpioideous dense spikes; bracts subcoriaceous, narrow-membranaceous, carinate, obtuse, the outer one mucronate, the inner one 4-times shorter, oblong, often subrecurved; flower showy, somewhat fragrant; calyx-tube glabrous as long the limb, limb purple, with 5 linear, bifid aristate lobes. — Flow. December to April.

M. ma. Marmarica: Matruqa; Bîr Hamam; Abusîr: Mariut; Alexandria-West and -East; Abukîr.

Local name: zêta.

Also known from Tripolitania.

413. (2.) **Limoniastrum** Moench.

Calyx tubular, membranous, ribless, with a minute, acutely 5-lobed limb. Corolla funnel-shaped, gamopetalous to throat, with a long, slender tube, and obovate lobes. Filaments adnate to throat of corolla. Styles connate to the middle, glabrous. Stigmas filiform-cylindrical. Utricle membranous, indehiscent. Albumen thin — Shrublets with fleshy leaves, and loosely spiked, 3-bracted spikelets, closely appressed to side of the rhachis.

A small genus widely distributed in the Mediterrean region and Arabia.

1031. **Limoniastrum monopetalum** Boiss. ap. DC. Prodrom. XII (1848), p. 689. — Boiss. Flor. Or. IV, p. 874. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 845. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers. Flor. Sirbon., p. 813 no. 32. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 258. — Statice monopetalum L. Spec. Plant., p. 396. — Bot. Reg. (1841), tab. 54. — A perennial herb. Glaucous, covered with calcareous scales, densely branched, and very leafy. Leaves fleshy, flat, oblong to lanceolate-spathulate, obtuse, tapering to a petiole sheathing the stem at the base. Spikes stiff, short-panicled; rhachis flexuous, jointed, very brittle; spikelets 2-flowered; lower bract wine-glass-shaped, obliquely truncate, sheathing the spikelet and rhachis; intermediate bract linear, triquetrous, subulate at the tip; innermost longer, leathery, enclosing the flowers; calyx-tube long, slender membranous, teeth minute, acute; flower fragrant; corolla pink, limb nearly rotate. — Flow. February to March.

M. ma. Ras-el-Kenâ'is; Mariut; Alexandria-West and -East; Mandara. — **M. p.** Rosetta; Brullus; Damietta; Gels-Mohammedîya el-Arish; Port Said. — Everywhere in deep sand.

Local name: zeyteh; zeyty (Forsk.); hatab-widny (Ascherson); adjirâm-el-holûs (Ascherson).

Also known from Morocco, Algeria, Tunisia, Spain, Arabia Petraea.

414. (3.) **Plumbago** Linn.

Calyx tubular, 5-toothed, more or less clothed with prominent stipitate glands. Corolla hypocrateriform. Stamens hypogynous. Ovary narrowed into the slender style which divides above into 5 longitudinally stigmatose branches. Capsule membranous, included in the persistent calyx. — Perennial herbs or shrubby occasionally scandent, with alternate membranous entire leaves and beautiful white, rose or blue flowers in terminal spikes.

A wide-spread genus in warm countries.

1032. **Plumbago zeylanica** L. Spec. Plant. I (1753), p. 215. — Boiss. Flor. Or. IV, p. 875. — Boiss. in DC. Prodrom. XII, p. 692. — Plumbago auriculata Hochst in Hb. Kotzsch and in Herb. Schimp. Abyss. — Shrubby, with ascending or somewhat scandent terete longitudinally striate branches. Leaves ovate or ovate-lanceolate, acute, base rounded or more or less cuneately narrowed into the petiole, the larger varying from $2^1/_2$—8 cm in length; petiole narrow but amplexicaul at the base and occasionally auricled. Bracts ovate acuminate, $^1/_4$—$^1/_3$ length of the calyx; lateral bracteoles narrower. Calyx 1 cm long or thereabout, strongly glandular-setose. Corolla white; tube considerably exceeding the calyx. — Flow. March to April.

M. ma. N. d. N. f. N. v. Cultivated in gardens and often subspontaneous.

Also known from Tropical Africa, Asia, Australia and America.

Contortae.

Herbs shrubs or trees, sometimes vines, rarly saprophytes. Leaves opposite or alternate: blades simple, typically entire. Inflorescence various, sometimes cymose, sometimes umbellate. Calyx of usually 5 partially united sepals or sometimes fewer. Corolla of usually 5 partially united petals or fewer. Androecium of as many stamens as there are corolla-lobes, or of 5 distinct or monadelphous stamens, partially adnate to the corolla in Asclepiadaceae and accompanied by a 5-lobed crown. Anthers erect or versatile, often the pollen granular or in waxy masses. Gynoecium of 2 more or less united carpels, or rarely of more, sometimes only united at the apex. Styles distinct or united. Stigma terminal. Ovules numerous. Fruit capsular, baccate, drupaceous or a pair of follicles.

86. Salvadoraceae.

Flowers regular, hermaphrodite or polygamo-dioecious. Calyx campanulate, 3—5-lobed. Corolla-segments 4—5, imbricate, free or united. Stamens usually 4, hypogynous or inserted on the corolla-tube; filaments short, free or monadelphous, sometimes alternating with small scales; anthers short, dorsifixed. Ovary 1—2-celled; style very short; stigma capitate or emarginate; ovules 1—2 in a cell, basal, anatropous. Berry fleshy or subdrupaceous; endocarp thin. Seed usually solitary, exalbuminous; cotyledons thick; radicle inferior. — Shrubs or trees, sometimes spiny. Leaves opposite, entire, coriaceous; rudimentary stipules sometimes present. Flowers small, arranged in panicles or axillary fascicles.

Species 7, confined to the warmer regions of Africa and Asia.

415. Salvadora Linn.

Calyx-tube broadly campanulate; segments 4, ovate, obtuse. Corolla-tube very short; segments 4, broad, obtuse. Stamens 4, inserted in the corolla-tube; filaments free, very short, slightly flattened; anthers orbicular; glands sometimes present. Ovary ovoid, 1-celled; style very short; stigma capitate; ovule 1, basal, erect. Drupe globose; endocarp chartaceous. Seed erect, globose; testa thin. — Shrubs or small trees, with unarmed branches. Leaves opposite, entire, coriaceous. Flowers very small, subunisexual, panicled.

A second species in Arabia and India.

1033. **Salvadora persica** Garcin ex Linn. Gen. Plant. ed. IV (1752), p. 163. — Boiss. Flor. Or. IV, p. 43. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 103 no. 677. — Lam. Illustr. III, tab. 81. — Vahl Symb. I, tab. 4. — Decsne. Voy. Jacquem., tab. 144. — DC. Prodrom. XVII, p. 28. — Rivina paniculata L. System. X, p. 889. — Cissus arborea Forsk. Flor. aeg.-arab., p. 32. — Embelia Burmannii Retz. Observ. IV, p. 24. — A much-branched shrub or small tree, glabrous in all its parts, covering sometimes an area of 27 m; branchlets white, terete. Leaves oblong, coriaceous, 5—6 cm long, rarely ovate or suborbicular, pale green; petiole 4—8 cm long. Panicles copiously produced from the end of the branchlets and axils of the upper leaves; pedicels very short; bracts minute. Calyx pale green, under 1 mm long. Corolla greenish-white, 2 mm long. Stamens shorter than the corolla. Drupe the size of a pea. — Flow. March.

N. v. Near Mitrahine (Muschler). — **D. a. sept. D. a. mer.** Rare in the desert on calcarious ground.

Local name: lishlish (Delile); râkkar (Schweinfurth); generally: arâk; râk; moswâk.

Also known from Tropical Africa, other parts of the Sahara region, Palestine, Arabia and India. — The twigs are used as tooth-brushes.

87. Oleaceae.

Flowers usually hermaphrodite, regular. Calyx inferior, small, campanulate, usually 4-toothed. Corolla gamopetalous, hypocrateriform, funnel-shaped or campanulate; lobes usually 4. Stamens usually 2, epipetalous; filaments short; anthers ovate-oblong, rarely linear, dorsifixed, dehiscing longitudinally. Disk 0. Ovary superior, 2-celled; style usually short; stigma usually capitate, often finally shortly 2-lobed; ovules usually 2 in a cell, attached by the base to the side or apex of the dissepiment, anatropous or amphitropous. Fruit capsular or indehiscent. Seeds 2—4, or by abortion solitary, erect or pendulous, albuminous or exalbuminous; testa usually thin; embryo straight, fleshy when the albumen is absent. — Erect or scandent unarmed shrubs or trees. Leaves usually opposite, simple or imparipinnate, entire or dentate, exstipulate. Inflorescence simple or compound, centripetal or centrifugal.

Species about 300, widely spread in the tropical and subtemperate regions of both hemispheres. From an economical point of view it is chiefly important from including the well-known olive, which yields the most valuable of vegetable oils. The various kind of jasmines and the lilac are common garden-plants belonging to the family.

A. Corolla-tube cylindrical; lobes imbricate . . . . . 1. **Jasminum.**
B. Corolla-tube short; lobes induplicate-valvate . . . . 2. **Olea.**

416. (1.) **Jasminum** Linn.

Calyx-tube campanulate; lobes 4, long or short. Corolla hypocrateriform; tube cylindrical; limb with 4—10 imbricate lobes. Stamens 2, inserted just below the throat of the corolla-tube; filaments short. Ovary 2-celled; style variable in length in the same species; stigma capitate or 2-lobed; ovules usually 2 in each cell, attached near the base of the dissepiment. Berry didymous or by abortion simple. Seeds solitary, erect; testa double; albumen 0; cotyledons plano-convex; radicle inferior. — Shrubs, often more or less scandent. Leaves usually opposite, simple or compound. Flowers usually white or yellow, fragrant, arranged in simple or compound cymes.

Species about 100, spread through the tropical and temperate regions of the Old World.

1034. **Jasminum officinale** L. Spec. Plant. I (1753), p. 9. — Boiss. Flor. Or. IV, p. 43. — Bot. Mag., tab. 31. — Rchbch. Ic. XVII, tab. 36. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 103. — A glabrous climbing shrub; branches striate subangulate. Leaves alternate, opposite, trifoliate or simple, somewhat leathery, leaflets oblong spathulate. Panicles terminal, few-flowered, corymbosed. Flowers 2—4 at the end of the branches, 1,5 cm long, white, fragrant; calyx-teeth awl-shaped, one-third to one-fourth as long as the corolla. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere in gardens and rarely subspontaneous.

Local name: qayan (Forsk.); generally: yâsemîn.

Origin of Caucasia, Persia and Himalaya.

417. (2.) **Olea** Linn.

Calyx small, campanulate, truncate or 4-lobed. Corolla-tube short, campanulate; segments 4, ovate, valvate. Stamens 2, inserted in the tube of the corolla; filaments short. Ovary 2-celled; style short; stigma capitate or emarginate. Fruit drupaceous; endocarp thick and bony, or thinner and crustaceous. Seeds usually solitary, pendulous, albuminous; albumen fleshy, sometimes slightly ruminate; cotyledons flat; radicle superior. — Trees or erect shrubs. Leaves opposite, simple, usually entire. Flowers small, panicled, hermaphrodite, dioecious or polygamous.

Species about 40, spread through the warmer regions of the Old World.

1035. **Olea europaea** L. Spec. Plant. I (1753), p. 11. — Boiss. Flor. Or. IV, p. 36. — Rchbch. Ic. XVIII, tab. 33 fig. III—IV. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 103. — Olea sativa Hoffmg. and Link Flor. Port. I, p. 387. — Olea Oleaster Hoffmg. and Link Flor. Port. I, p. 387. — A small tree or often shrub. Branches of the wild specimens more or less stiff, spinescent. Leaves oblong or lanceolate, entire, silvery-scurfy below. Flowers in axillary racemes. Calyx cup-shaped, nearly truncate. Drupe ovate or ellipsoid. — Flow. February to March.

N. d. N. f. O. Cultivated everywhere for its oily fruit. — Rarely subspontaneous.

Local name: zeytun; azmûr.

Common in all parts of the Mediterranean region, Asia Minor, Syria, Mesopotamia, Persia, Pundjab, Arabia and Nubia.

88. Gentianaceae.

Calyx of 4 or 5, rarely more, lobes or segments. Corolla usually regular, with 4 or 5, rarely more, lobes, contorted or otherwise imbricate or induplicate in the bud. Stamens as many as corolla-lobes and alternate with them, inserted in the tube. Anthers versatile, with 2 parallel cells opening longitudinally or in terminal pores. Ovary 1-celled, but with 2 parietal placentas often projecting into the cavity so as partially to divide it into 2 or 4 cells, or rarely completely 2-celled; ovules numerous; style single, entire or with 2 short stigmatic lobes. Fruit a capsule, opening septicidally in 2 valves or rarely indehiscent or succulent. Seeds small, with a fleshy albumen. Embryo small, straight, with short cotyledons. — Herbs, very rarely in species not Egyptian, shrubs, usually glabrous and bitter. Leaves opposite and entire in one tribe, alternate or clustered in an other. Stipules none. Flowers usually in cymes or corymbose panicles, rarely clustered or solitary.

The Order is chiefly abundant in the temperate or mountainous regions of the northern hemisphere, with a few tropical or southern species.

418. Erythraea Linn.

Calyx tubular, shortly 5-cleft. Corolla-tube long or short; lobes 5, rarely 4, spreading, contorted. Stamens inserted in the corolla-tube; filaments filiform; anthers twisted. Ovary 1-celled; placentas much inflexed; style subulate; stigma 2-lobed. Capsule oblong, septicidally 2-valved. Seeds numerous, minute, foveolate. — Annual or perennial herbs. Leaves sessile or amplexicaul. Flowers in terminal dichotomous cymes, usually pink.

Species numerous, principally inhabiting the north temperate zone, but extending to Australia and Chili.

A. Corolla pink; style undivided.
  I. Flowers solitary.
    a) Leaves oblong to oblong-linear, acute . 1. **E. ramosissima.**
    b) Leaves ovate to oblong, obtuse . . . . 2. **E. latifolia.**
  II. Flowers in spike-like, cymose racemes . . . 3. **E. spicata.**
B. Corolla yellow; style 2-cleft . . . . . 4. **E. maritima.**

1036. (1.) **Erythraea ramosissima** Pers. Synops. I (1805), p. 283. — Boiss. Flor. Or. IV, p. 67. — Rchbch. Ic. XVII, tab. 20 fig. V. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 690. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Erythraea pulchella Fries Nov. Flor. Suec., p. 30. — DC. Prodrom. IX, p. 57. — Stems erect, usually much branched, 15—30 cm long. Leaves in many pairs,

oblong or lanceolate, 1—2 cm long. Cymes few- or many-flowered, with single flowers in the forks; pedicels short. Calyx cylindric, 5—6 mm long; teeth linear, 4—5-times as long as the tube. Corolla-tube cylindrical, longer than the calyx; limb bright pink, 5 mm long; segments ovate. Stamens inserted at the throat of the tube, shorter than the segments. — Flow. February to March.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Brullus; Damietta. — **N. d. N. f. N. v.** Common along way-sides, and in fields. — **O.** Siwa; Little Oasis; Farâfra; Dakhel; Great Oasis.

Local name: qantaryûn; qantaryân; quteyba (Ascherson); tasherrât (Roth); kontranîye (Aschers.).

Also known from the whole Mediterranean region and Europe.

1037. (2.) **Erythraea latifolia** Smith Engl. Flor. I (1824), p. 321. Boiss. Flor. Or. IV, p. 67. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 691. — Erythraea tenuiflora Link Flor. Port. I, p. 354 tab. 67. — Engl. Bot., Supplem. tab. 2179. — Erythraea anatolica K. Koch in Linnaea XIX, p. 27. — An annual plant, 30—60 cm high or sometimes somewhat more, stiff-branched, cymes dense. Leaves ovate to oblong, obtuse. Flowers clustered, bracted at the base; corolla-tube a little longer than the calyx, lobes lanceolate, acutish. — Flow. March to April.

N. d. Without precise locality (Boiss.).

Also known from Southern Europe, Arabia Petraea and Palestine.

1038. (3.) **Erythraea spicata** Pers. Synops. I (1805), p. 283. — Boiss. Flor. Or. IV, p. 69. — Sibth. and Smith Flor. graec., tab. 238. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 692. — Gentiana spicata L. Spec. Plant. I, p. 333. — Erythraea babylonica Griseb. in DC. Prodrom. IX, p. 60. — An annual plant, 20—50 cm high; stem densely leafy, branching above. Leaves oblong, nearly 5-nerved. Flowers nearly sessile, bracteate; corolla-tube as long as the calyx, lobes lanceolate, acute. — Flow. March to April.

M. ma. Abusîr; Mariut; Montaza; Alexandria-West and -East, salt marshes; Abukîr. — **M. p.** Rosetta; Damietta. — **N. d.** Damanhur; Desûq; Fûa; Er-Rahmânîya; Tanta; Shirbîn; Bendela; Mansura; Zifta; Zaqaziq; Qalyûb; Belbês; Cairo. — **N. f.** Medînet-el-Fayûm; Senûris; Tamîa; El-Wady. — **O.** Little Oasis; Farâfra; Great Oasis. — **D. l.** 'Ain Rayân.

Local name: menâsh-ed-dubân (Schweinfurth); hashishet-el-'agrab (Schweinfurth).

Also known from Southern and Middle Europe Eastern-North Africa and Arabia Petraea.

1039. (4.) **Erythraea maritima** Pers. Synops. I (1805), p. 283. — Boiss. Flor. Or. IV, p. 68. — Sibth. and Smith Flor. graec., tab. 237. — Chironia maritima Willd. Spec. Plant. I, p. 1069. — An annual plant, 20—50 cm high, or somewhat more, simple, one-flowered, or branching above. Leaves elliptical to oblong, obtuse, upper ones acutish. Cyme few-flowered, loose; flowers pedicelled; corolla 2 cm long, tube sowewhat longer than the calyx, lobes ovate, acutish; valves of the capsule slightly introflexed. — Flow. March to April.

M. ma. Ramle; Mandara, in shaded situations, and also in cultivated ground.

A common plant in Europe and Asia.

89. Apocynaceae.

Flowers hermaphrodite, regular. Calyx inferior; sepals 5 (very rarely 4) free or slightly (rarely more) united, more or less imbricate, equal or more or less unequal, often with (usually scale-like) glands near the base inside. Corolla salver- or funnel-shaped, rarely campanulate, urceolate or subglobose, glabrous or more or less hairy within, sometimes with scales or callous protuberances or ridges in the tube or mouth; lobes usually convolute, overlapping and frequently also twisted to the right or the left, very rarely valvate. Stamens 5 (very rarely 4), inserted in the corolla-tube or mouth; filaments filiform or more often flattened and short or reduced to a callous swelling, often passing at the base into more or less decurrent ridges projecting into the tube (filamental ridges); anthers frequently conniving in a cone, either linear or oblong (rarely elliptic), shortly and obtusely 2-lobed at the base with the anther-cells parrallel polliniferous and dehiscing to the base, or sagittate with barren tails (very frequently formed by the continuation of the outher halves of the cells), leaving the front basal part of the connective (foot) free; foot of the connective smooth or with various shaped projections or regular groups of spreading hairs. Pollen nearly always spherical with 3 pores, loose or rarely more or less cohering. Disk if present annular or cupular, 5-lobed or consisting of 2—5 scales, sometimes more or less adnate to the ovary. Ovary superior, or slightly inferior, of 2 (very rarely 3—5) united or distinct carpels, if syncarpous, 1-celled with parietal or 2-celled with central placentas, if apocarpous with ventral placentas. Style 1, entire or divided at the base; stigma various, with or without a usually bifid apiculus and frequently with a ring or other appendages, viscous on the surface or exuding much glutinous matter and

agglutinated to the anthers or adnate to the projections of the foot of the connective. Ovules anatropous, usually pendulous, few or many in each carpel. Fruit entire, baccate, drupaceous, samaroid or consisting of 2 (rarely 3—5) baccate or follicular mericarps, rarely breaking up into 2 or 4 valves. Seeds various, frequently compressed, very often with a tuft of hairs (coma) at one or both ends, or winged, rarely with a plumose apical or basal awn; testa coriaceous, crustaceous or membranous. Endosperm, if present, cartilaginous or fleshy. Embryo straight; cotyledons usually flat, rarely convolute or contortuplicate; radicle superior. — Trees, erect or scandent shrubs or perennial (very rarely annual) herbs, more or less laticiferous. Leaves simple, generally opposite, sometimes whorled, rarely spirally arranged, entire, pinnatinerved. Stipules, if present, short, intrapetiolar, and often joining around the stem in a transverse ridge, very rarely one on each side of the petiole, or represented by spines. Inflorescences made up of (often much reduced) cymes, terminal or pseudolateral or truly axillary; cymes solitary or clustered or gathered in loose or congested, often 2—3-tomous, panicles, corymbs or pseudo-umbels; bracts usually small and deciduous. Flowers small to large and then often very showy.

The Order is abundantly represented in the tropical and subtropical regions of the New and the Old World, with a very few species in the more temperate districts of the nothern and southern hemispheres, but does not extend to arctic or high alpine regions. Genera about 120; species nearly 1000. The family includes many poisonous plants, some (as the ordeal-tree of Madagascar, *Tanghinia venenifera*) being exceedingly virulent-others are employed medicinally as drastic purgatives or febrifuges. A few species yield indiarubber, but on the whole the family is not of much economic importance. The flowers are often of considerable beauty, and many genera are cultivated in gardens or greenhouses. The Order is closely allied to Asclepiadeae, differing chiefly in the indefinite free pollen-granules.

A. Tribe 1: *Plumerioideae.* — Corolla salver-shaped, rarely funnel-shaped; lobes overlapping to the left, rarely to the right. Anthers linear, oblong or elliptic, shortly and obtusely 2-lobed (rarely sub-sagittate) at the base; anther-cells polliniferous and dehiscing to the base or nearly so, not diverging below. Ovary syncarpous, 1—2-celled, or apocarpous with 2 (rarely 3—5) free or partly connate carpels; stigma various, usually distinctly apiculate, rarely hairy or with frill-like appendages, often exuding more or less glutinous matter and then sometimes sticking to the anthers in the dry state, otherwise free. Fruit baccate, drupaceous or dry and

follicular. Seeds not comose, exarillate; endosperm (if any) smooth, rarely grooved and ruminate. Cotyledons flat.

I. Ovary syncarpous, 1—2-celled . . . . . 1. **Carissa.**
II. Ovary apocarpous.
a) Little shrubs or herbs . . . . . 2. **Vinca.**
b) Trees or tall shrubs . . . . . 3. **Plumiera.**

B. Tribe II: *Echitoideae.* — Corolla various; lobes overlapping to the right, very rarely to the left, or induplicate-valvate or valvate. Anthers usually sagittate; anther-cells diverging below, the outer halves passing into barren tailed appendages; foot of the connective free, generally provided with projections and regularly arranged groups of spreading hairs. Ovary apocarpous, rarely syncarpous; stigma various, exuding a glutinous matter and tightly agglutinated or adnate to the foot of the connective, very rarely to the base of the filaments. Fruit dry, follicular. Seeds comose, very rarely not; or with a basal or apical plumose awn; endosperm smooth, often scanty. Cotyledons flat, semiterete, convolute or contortuplicate . . . . . 4. **Nerium.**

419. (1.) **Carissa** Linn.

Calyx small, eglandular, very rarely multiglandular within; sepals 5, very rarely 4, free or nearly so, imbricate, acute or acuminate. Corolla salver-shaped; tube slightly widened below the mouth or near the middle; lobes usually overlapping to the right, rarely to the left. Stamens enclosed in the widened part of the corolla-tube; filaments short, slender; anthers oblong, acute; cells obtuse at the base, polliniferous and dehiscing to the base. Disk 0. Ovary entire, 2-celled; ovules 1—4 in each cell, from the middle of the septum, rarely more in 2—3 rows; style filiform; stigma at the level of the anthers, or rarely some way below them, oblong, papillose and viscous, with a 2-lobed hairy tip. Fruit baccate, globose to oblong. Seeds usually 1—4, rarely more, peltate, planoconvex; hilum central; endosperm horny; cotyledons ovate; radicle superior. — Much branched, straggling and usually very spinous shrubs or small trees, rarely climbing; spines opposite, simple, rarely forked, often very stout. Leaves coriaceous, very variable on the same individual; axillary stipules 0; axillary glands very minute and few, or 0. Inflorescence often umbelliform, or corymbiform, and much-contracted, terminal or pseudo-axillary, rarely cymose, lax

and few-flowered; flowers subsessile, white or tinged with pink. Berries often edible.

About 18 species, in the tropics of the Old World, extratropical South Africa and Australia.

1040. **Carissa edulis** Vahl Symb. I (1790), p. 22. — DC. Prodrom. VIII, p. 334. — Carissa Candolleana Jaub. and Spach Illustr. Flor. Or. V, tab. 497. — Carissa cornifolia and Carissa Richardiana Jaub. and Spach Illustr. Flor. Orient. V, tab. 498 and 496. — Arduina edulis Spreng. System. I, p. 669. — A very much branched straggling or climbing shrub, glabrous, or young branches with short spreading hairs but soon glabrescent; spines simple, straight or recurved, 2—5 cm long, rarely almost suppressed. Leaves ovate to ovate-elliptic or sublanceolate, rarely orbicular, 18—50 mm long, 18—36 mm broad, sometimes much smaller, rounded at the base or subcuneate, acute and often mucronate, rarely obtuse, coriaceous, glabrous or very soon glabrescent; nerves 3—5, faint on both sides; petiole 2—$2^1/_2$ mm long. Calyx $2^1/_2$—5 mm long; sepals lanceolate, acuminate, ciliolate, glabrous or puberulous. Corolla white or purple, or purple turning white, glabrous or minutely hairy at the mouth and on the inner surface of the lobes, 10—20 (rarely 8—9) mm long; lobes ovate or oblong, acute, $2^1/_4$—8 mm long. Berry globose, purple to black, 4—5 mm in diam., edible. Seeds 2—4. — Flow. January.

M. ma. Alexandria, often in gardens; Mandara, some wild specimens.

Also known from Arabia, Socotra and Tropical Africa.

420. (2.) **Vinca** Linn.

Little shrubs, rarely herbs with opposite, entire leaves, and blue, pink, or white flowers, growing singly on axillary peduncles. Calyx free, deeply divided into 5 narrow divisions. Corolla with a cylindrical or almost campanulate tube, and a flat, spreading limb, with 5 broad, oblique segments, twisted in the bud. Stamens 5, enclosed in the tube. Ovaries 2, distinct at the base but connected at the top by a single style, terminating in an oblong stigma, contracted in the middle. Fruit consisting of 2 oblong or elongated capsules or follicles, each of a single cell, of a greenish colour, diverging as they ripen, and opening by a longitudinal slit on the inner side. Seeds several, without the seed-down of many other genera of the Order.

A genus widely distributed in the temperate regions of the world.

1041. **Vinca maior** L. Spec. Plant. I (1753), p. 304. — Boiss. Flor. Or. IV, p. 45. — Rchbch. Ic. XVIII, tab. 22. — A little shrub, with a creeping rootstock, long, trailing, barren shoots, and nearly erect, simple flowering stems, about a foot high. Leaves broadly ovate, evergreen, and shining, but bordered by minute hairs. Pedicels shorter than the leaves. Calyx-segments narrow, ciliate on the edges. Corolla large, blue; the tube broad, almost bell-shaped, though slightly contracted at the mouth; the lobes broad, almost angular. — Flow. March to April.

M. ma. N. d. N. v. Often cultivated in gardens and sometimes seminaturalized.

In woods and shady banks, in Southern Central Europe to the Caucasus, but having been long cultivated for ornament, and spreading with great rapidity by its rooting stems.

421. (3.) **Plumiera** Linn.

Calyx small, eglandular within; sepals 5, almost free, imbricate, usually broad and obtuse, sometimes unequal or partly or wholly suppressed. Corolla salver-shaped; tube cylindric, slender, slightly widened at the base, without appendages in the mouth; lobes 5, broad, oblong, overlapping to the left, straight or more or less twisted. Stamens in the widened base of the corolla-tube; anthers free from the stigma, oblong, apiculate, 2-lobed at the base; anther-cells polliniferous and dehiscent to the base. Disk 0. Ovary apocarpous, semi-inferior; carpels 2; style very short, columnar; stigma just below the anthers, ellipsoid, copiously viscous in the lower part, somewhat constricted above, with a thick papillose ring below the 2-fid, stout apiculus; ovules numerous, pluriseriate. Mericarps follicular, divaricate, elliptic to linear in outline, coriaceous. Seeds oblong or lanceolate, flattened, winged at the apex or all round; endosperm fleshy, thin; cotyledons oblong or ovate-cordate; radicle short. — Trees or tall shrubs, usually with stout branches. Leaves alternate; petioles usually long; secondary nerves numerous, straight, connected by a more or less conspicuous marginal nerve; axillary stipules 0; petiole resinous at the base, without external glands. Flowers rather large, white or pink, frequently with a yellow centre or quite yellow, in contracted or ultimately elongate cymes arranged in terminal, often umbelliform corymbs or panicles, and supported by often large, caducous bracts.

Species 30—40, natives of tropical America; some of them naturalised or commonly cultivated in the tropics of the Old World.

1042. **Plumiera rubra** L. Spec. Plant. I (1753), p. 209. — Bot. Mag., tab. 279. — Lam. Encyclop. II, p. 308 tab. 173 fig. 1. —

DC. Prodrom. VIII, p. 390. — A shrub or small tree. Leaves crowded near the ends of the branches, oblong or elliptic-oblong, acute at both ends, or the tips subacuminate, 10—22 cm long, 5—8 cm broad, herbaceous, quite glabrous; secondary nerves 25—40 on each side, horizontal in the lower, slightly oblique in the upper part; petiole puberulous, 2—5 cm long. Corymbs many-flowered, umbelliform; peduncle 5—10 cm long, stout, puberulous; pedicels up to 1 cm long. Calyx scarcely 2 mm long. Corolla pink; tube 2 to 8 mm long; lobes obovate-oblong, 2—$2^1/_2$ cm long. Follicles 8 in. long, $2^1/_2$ cm wide. Flow. December.

N. d. Alexandria; Cairo often cultivated in gardens; Zaqaziq, subspontaneous.

Probably a native of Central America; frequently cultivated in the Tropics.

422. (4.) **Nerium** Linn.

Calyx 5-parted, with linear-lanceolate lobes, glandular within. Corolla salver-shaped with 5-parted limb, and fringed crown projecting from throat. Stamens inserted on the middle of corolla tube; anthers longer than filament, adherent by middle to stigma, sagittate at base, ending at apex in long, hairy, spirally twisted bristles. Style undivided, stigma obtuse. Follicles 2, appressed, at length somewhat separate. Seeds numerous, hairy. — Shrubs with very showy, pink or white flowers, and milky juice.

A small genus with a everywhere cultivated species.

1043. **Nerium Oleander** L. Spec. Plant. I (1753), p. 305. — Boiss. Flor. Or. IV, p. 47. — Rchbch. Ic. XVIII, tab. 23. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 104 no. 578. — A shrub, 1—4 m high, clumped. Leaves opposite or ternate, leathery, oblong-lanceolate, minutely tomentellous beneath. Flowers corymbose-cymose; pedicels and calyx tomentellous; plume of anther scarcely overtopping throat of corolla. — Flow. October to May.

D. a. mer. "Trovasi in piccoli gruppi nei burroni cho versono nel Golfo Berenice" (Figari Stud. Scientif. sull'Egitto I, p. 205). — Cultivated in all gardens of the whole country.

Local name: difle.

Everywhere common in the Mediterranean region.

90. **Asclepiadaceae.**

Flowers regular. Calyx free, divided nearly or quite to the base into 5 segments or sepals, imbricate in the bud, bearing fre-

quently 5 or more small glands at the base inside. Corolla regular, with 5 teeth or lobes, contorted or valvate in the bud, with or without scales or appendages in the throat alternating with the lobes. Stamens 5, inserted at the base or near the base of the corolla, the filaments short, connate or rarely free, the anthers always connate in a tube (called gynostegium) enclosing the style; anthers 2-celled, or by the subdivision of the cells more or less completely 4-celled; the cells opening inwards, the connectivum produced into a short, truncate or rarely acute appendage, or more frequently terminating in an inflexed membrane; corona consisting of variously shaped glandular membranous or fleshy appendages attached to the back of the filaments or anthers, sometimes united in a cup or ring, quite deficient in a few genera: pollen consolidated into 1 or 2 masses in each cell of the ovary, attached (when the anther opens) in pairs or in fours (1 or 2 from each of the adjoining anthers) to small processes of the stigma placed between the anthers, and ultimately detached from the stigma and carrying off the pollen-masses. Ovary of 2 distinct carpels, with several usually numerous ovules attached to the inner angle; styles united immediately above the ovary, and thickened within the anthers into an angular body, usually called the stigma, although not wholly stigmatic; the summit in the centre either truncate or more or less protruding in a conical or elongated, beak-like, entire or 2-lobed process. Fruit of 2 follicles, or frequently 1 only from the abortion of the other carpel. Seeds usually pendulous, with a long silky tuft of hairs or coma at the hilum, compressed, often, bordered; testa usually brown, smooth or rough; albumen thin; embryo straight; cotyledons foliaceous; radicle short, superior. — Herbs, with a perennial, sometimes tuberous rootstock, or more or less woody stock, or shrubs or very rarely trees. Stems or branches frequently twining; juice usually milky. Leaves almost always opposite, entire; stipules none or very obscure. Flowers often small, in racemes of cymes often reduced to umbels, axillary or more frequently on one side of the branch between the petioles. Bracts small, at the base of the branches and pedicels; bracteoles on the pedicels none or very rare and small.

Like Apocynaceae, the Order is abundantly dispersed over the tropical regions of both the New and the Old World, and represented by a few extra-tropical species in the southern as well as the northern hemisphere, but does not extend to arctic or high alpine regions. The Order is nearly allied to Apocynaceae, but, with a somewhat different habit, it is neatly distinguished by the definite pollen-masses, and their peculiar adherence to bodies detached from the style. In determining the species of this Order, it is absolutely necessary that the number and position (pendulous horizontal or erect) of these pollen-masses should be carefully studied, and secondly that the con-

figuration of the corona be attended to, for whilst there is a great general resemblance in the majority of species belonging to very different genera, the genera themselves are better defined than might have been expected from characters apparently so artificial.

A. Tribe I: *Periploceae.* — Filaments of the stamens free. Anthers triangular or oblong, their connectives produced beyond the cells into short terminal points (apiculate), or into small dilated, membranous or somewhat fleshy appendages, connivent over the apex of the style and frequently connate at their tips. Pollen-contents of each anther-cell of numerous loose granules, each granule formed of 4 pollen-grains united in tetrads. Pollen-carriers spathulate, trumpet-shaped, or trowel-shaped, sometimes bipartite, horny, furnished with an adhesive gland at their base, not attached to the pollen-grains, but holding them loosely in their concave upper part . . . . . 1. **Periploca.**

B. Tribe II: *Cynancheae.* — Stamens with the filament-part when present connate into a tube, sometimes very short and ring-like; anthers adnate to the dilated part of the style, with a membranous appendage. Pollen-contents of each anther-cell united into one waxy mass. Pollen-masses opaque, without a pellucid margin, attached in pairs to each of the pollen-carriers by short or long caudicles, from which they are pendulous in the anther-cells. Pollen-carriers turgid, rarely flattened, with a dorsal suture, hard and horny, varying from reddish-brown to black.

I. Corona of 5 free lobes arising from the corolla-tube, none on the staminal-column, but sometimes inserted on the corolla just above its base . . . . . 2. **Glossonema.**

II. Corona simple or double, arising from the staminal-column or at its very base in the angle where the column and corolla unite.

a) Corona double, i. e. in two series . . . 3. **Daemia.**

b) Corona in one series, no outer corona, but often furnished with appendages on the inner face of the lobes or tube formed by their union.

1. Coronal-lobes connate into a tube or cup, at least at their base, 5- or 10-lobed or toothed at the top and sometimes with minute teeth between the principal teeth, with or without a tooth, lobe, thickening or keels within in front of the 5 principal lobes or teeth.
   α) Corona with the 5 principal teeth or lobes alternating with the corolla-lobes, often furnished with appendages or keels within . . . . . 4. **Cynanchum.**
   β) Corona with its 5 deeply concave-hooded lobes opposite the corolla-lobes . . . . . 5. **Solenostemma.**
2. Coronal-lobes alternating with the corolla-lobes and opposite to the anthers, free to their base or partly or entirely adnate to the staminal-column.
   α) Stem twining . . . . . 6. **Oxystelma.**
   β) Stem not twining.
      † Coronal-lobes laterally flattened, with an upcurved spur at the base . . . . . 7. **Calotropis.**
      †† Coronal-lobes not spurred at the base . . . . . 8. **Asclepias.**

C. Tribe III: *Ceropegieae.* — Stamens with their filaments connate into a tube and adnate at the top to the dilated part of the style. Anthers erect or incumbent on the top of the style, with or without an apiculus or a short terminal appendage. Pollen-contents of each anther-cell united into one waxy mass. Pollen-masses pellucid along the inner margin or at the apex, attached in pairs to the pollen-carriers by short caudicles, erect, ascending, or horizontal in the anther-cells, never pendulous. Pollen-carriers sometimes with a wing-like expansion on each side, horny, hard, dark-coloured. Stems herbaceous or fleshy, often twining, with well-developed leaves, rarely leafless and then without distinct angles . . . . . 9. **Leptadenia.**

D. Tribe IV: *Stapelieae.* — Pollen-masses and other characters as in Ceropegieae, but differing as follows. Stems thick and fleshy, 3- to many-angled, usually dwarf, erect or procumbent, tuber-

culate-tessellate, or toothed along the angles, leafless or the teeth tipped with rudimentary or small subulate fleshy leaves, or the tubercles or teeth bearing stout conical or spine-like or slender bristles. Flowers fleshy. Corona arising from the staminal-column, none on the corolla . . . 10. **Caralluma.**

423. (1.) **Periploca** Linn.

Calyx 5-partite. Corolla rotate, 5-lobed nearly to the base; lobes overlapping and slightly twisted to the left in bud. Corona of 5, filiform or linear lobes, arising from the corolla at or a little above the insertion of the stamens and opposite to them, simple or divided, with or without a more or less broadly dilated base, which is often more or less spreading on and adnate to the base of the corolla-lobes, and usually two-keeled within. Stamens arising from the corolla a little above its base; filaments free, short; anthers adnate to the style at their base, hairy on the back or at the base, with the connective produced into an apiculus, by which they are usually connate at their tips. Pollen granular. Style shorter than the anthers, convex or subtruncate at the apex. Follicles smooth. Seeds crowned with a tuft of hairs. — Twining or erect shrubs, rarely leafless. Leaves opposite. Flowers of moderate size, or small, in lax axillary or terminal cymes.

Species several; the genus extends into North Africa, the Canaries, South Europe and through the Orient into India and China.

A. Tall shrubs, more or less climbing by twining of the stems.
  I. Leaves ovate to ovate-lanceolate, short-petioled 1. **P. graeca.**
  II. Leaves elliptic-linear, nearly sessile . . . . . 2. **P. laevigata.**
B. Rigid, almost leafless shrubs, not twining or climbing 3. **P. aphylla.**

1044. (1.) **Periploca graeca** L. Spec. Plant. I (1753), p. 309. — Boiss. Flor. Or. IV, p. 49. — Sibth. and Smith Flor. Graec., tab. 249. — Bot. Mag., tab. 2289. — DC. Prodrom. VIII, p. 498. — A tall shrub. Leaves opposite, ovate to oblong-lanceolate, obtuse or acute, 50 cm to 1 m long, glabrous, short-petioled. Cymes terminal, loose; corolla 1,5—2 cm broad, brownish-green, lobes oblong, retuse, bearded at the margin; scales of crown 2-auricled, ending in an undivided awn; follicles somewhat divergent. — Flow. January to March.

M. ma. Alexandria, in gardens and often naturalized.

Also known from Italy, Dalmatia and Greece.

1045. (2.) **Periploca laevigata** Ait. Hort. Kew. I (1789), p. 301. — Boiss. Flor. Or. IV, p. 50. — DC. Prodrom. VIII, p. 498. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 104 no. 679. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 658 no. 214. — Periploca angustifolia Labill. Ic. Syr. Dec. II, p. 13 tab. 7. — Periploca rigida Viv. Flor. Libyc., p. 14 tab. 6 fig. 3—4. — A tall shrub. Branches short, rigid, the upper only twining. Leaves opposite or clustered, nearly sessile, oblong to elliptico-linear, obtuse or acute, much smaller than in the last, glabrous, nearly sessile. Cymes terminal, few-flowered, shorter than the leaves; corolla 5—8 mm broad, yellow, glabrous, except an ovate, woolly spot near middle of obtuse or retuse lobes; scales of crown 2-auricled, ending in a simple awn; follicles horizontal. — Flow. February to March.

M. ma. Marmarica: Kasr-el-Adjedabîya; Matruqa; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr; Qasr-el-Adjabîye.

Local name: halâb; halâblab (Schweinfurth).

Also known from the Canarian Islands; Spain; Sicily; Morocco; Algeria; Tunisia; Tripolitania; Cyrenaica, Western Marmarica and Syria.

1046. (3.) **Periploca aphylla** Decsne. in Jacquem. Voy. Bot. (1841), p. 109 tab. 116. — DC. Prodrom. VIII, p. 499. — Boiss. Flor. Or. IV, p. 50. — K. Schumann in Engler and Prantl, Naturel. Pflanzenfam. IV, fasc. II p. 216. — A branching glabrous or puberulous shrub, with stiff moderately stout leafless branches, or sometimes the young shoots bear small oblong or linear-oblong obtuse or acute leaves 5—9 mm long, 7—$2^1/_2$ mm broad, on very short petioles. Cymes terminal on very short lateral branches, 5—20-flowered; bracts minute, obtuse; pedicels $2^1/_2$—6 mm long, glabrous or puberulous. Sepals 7—2 mm long, 5—8 mm broad, ovate or ovate-oblong, obtuse, glabrous or puberulous. Corolla rotate, 12 to 15 mm in diam.; lobes $5^1/_2$—6 mm long, $2^1/_2$—$2^3/_4$ mm broad, oblong-ovate, obtuse or subacute, glabrous on the back, bordered on the inner face near the margin with long white hairs, glabrous on the central part, with a slightly raised lanceolate boss down the middle, formed of minute, densely crowded papillae. Coronal-lobes $6^1/_2$ mm long; basal part transversely oblong, truncate, with two wing-like keels down the inner face, one near each margin; apical part filiform, erect, tortuous. Stamens hairy on the back of the deltoid-ovate anthers; filaments glabrous. Follicles widely divergent, 6—8 cm long, 5 mm thick, terete, acuminate, glabrous or puberulous. — Flow. January to March.

M. ma. Mandara; Abukîr, in sandy places (Muschler).

Also in Tropical Africa and extending through Arabia and Persia into the plains of Northwest-India.

424. (2.) **Glossonema** Decsne.

Calyx 5-partite. Corolla-tube short; lobes 5, suberect or spreading, overlapping to the left, but scarcely twisted in the bud, often tuberculate or thickened below the apex. Corona of 5 lobes arising from the tube of the corolla a little above the origin of the staminal-column or at the mouth, alternating with the corolla-lobes, usually free and variable in form, rarely connate into a 5-lobed tube. Staminal-column arising at or below the middle of the corolla-tube; anthers terminated by erect or inflexed membranous appendages. Pollen-masses pendulous, solitary in each anther-cell, attached in pairs to the pollen-carriers by short or almost obsolete caudicles. Style sometimes exserted beyond the anthers. Follicles variable, echinate or smooth. Seeds flat, with entire or toothed margins, crowned with a tuft of hairs. — Dwarf perennial or rarely annual herbs, with opposite leaves. Cymes lateral or sublateral between the bases of the petioles, few-or many-flowered, or the flowers solitary, small.

Species few mostly natives of Tropical Africa but extending into North Africa and from Arabia to Scinde.

1047. **Glossonema Boveanum** Decsne. in Ann. Scienc. Nat. Ser. 2 Vol. IX (1835), p. 335 tab. 12 fig. D. — Boiss. Flor. Or. IV, p. 62. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 685. — Glossonema affine N. E. Br. in Kew Bulletin (1895), p. 249. — Petalostemma Chenopodii R. Br. in Salt Voy. Abyss. Append. XIV, name only. — A dwarf herb 9—20 cm high, branching from the base. Stems ascending, more or less pubescent with white hairs. Leaves spreading; petiole 2—9 mm long; blade 8—25 mm long, $2^1/_2$—11 mm broad, ovate, or ovate-lanceolate, acute or obtuse, cuneately narrowed or broadly rounded into the petiole at the base, more or less undulate or crisped on the margins, thinly or densely white-pubescent on both sides or glabrous above. Flowers 1—3 together, sublateral; pedicels 2—$2^1/_2$ mm long, white-pubescent. Sepals $2^1/_4$—$2^1/_2$ mm long, lanceolate, acute, pubescent. Corolla-tube 2 mm long, campanulate; lobes spreading, $2^1/_2$—5 mm long, 8—2,5 mm broad, oblong or oblong-ovate, obtuse or subacute, slightly thickened above or subtuberculate near the apex, with the margins recurved, glabrous or with a few hairs on the back. Coronal lobes arising a short distance below the sinuses of the corolla, $2^3/_4$—5 mm long, 1 mm broad in the broadly oblong basal half, 3-lobed, with the middle lobe long and filiform, or subtruncately or somewhat abruptly contracted into a filiform or subulate point, or occasionally filiform-acuminte. Staminal-column 2 mm long; anther-appendages reniform,

very obtuse. Style protruded for about 5 mm beyond the anther-appendages; apical part stout, conical, obtuse or shortly bifid. Follicles $1^1/_2$—2 in. long, 11—21 mm thick, ovoid, acute, strongly echinate, minutely pubescent or nearly glabrous. Seeds about 5 mm long, $2^1/_2$ mm broad, ovate, flattened, very minutely scaberulous, dark brown.

D. a. mer. Kene; Qoseyr; Wady Albaruk; Alirsa Zebara; Tundeba; Wady Gadîre; Wady Lekhuma.

Local name: eteyr; etîrr (Klunzinger); the fruit — shafella (Klunzinger).

Also known from Tropical Africa and Arabia.

425. (3.) **Daemia** R. Br.

Calyx 5-partite. Corolla-tube campanulate or cylindric; lobes 5, widely spreading, overlapping to the left in bud. Corona double; outer corona at the base of the staminal-column, membranous, annular, shortly 5-lobed; lobes subquadrate or oblong, obtuse, truncate, or denticulate; inner corona of 5 erect fleshy lobes adnate to the staminal-column up to the anthers, free above and produced into subulate horns incurved over the staminal-column, at the base produced into spreading or deflexed spurs. Staminal column arising at the mouth of the corolla-tube, entirely exserted; anthers erect, terminated by a membranous appendage, inflexed over the apex of the style. Pollen-masses pendulous, solitary in each anther-cell, compressed, attached in pairs to the pollen-carriers by their tapering ends, without caudicles. Follicles lanceolate, echinate or smooth. Seeds crowned with a tuft of hairs. — Twiners, with opposite cordate leaves, and sublateral pedunculate corymbs or racemes of moderate-sized flowers.

Species 4, of which 2 extend through Arabia and Syria into India, 2 occur in South Africa, and 1 in Madagascar.

1048. **Daemia tomentosa** (L.) Vatke in Oester. Bot. Zeitschrift (1876), p. 146. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 104 no. 683. — Pergularia tomentosa L. Mant. (1771), p. 53. — Desf. Flor. Atl. I, p. 209. — Lam. Illustr., tab. 176. — Daemia cordata RBr. in Mem. Wern. Soc. Edinb. I, p. 50. — Boiss. Flor. Or. IV, p. 59. — Asclepias cordata Forsk. Flor. aeg.-arab., p. 49. — Daemia incana Decsne. in Ann. Scienc., Nat. 2 sér. IX p. 336. — Stems shortly tomentose, with or without a mixture of long hairs, sometimes slightly hispid. Leaves deflexed; petiole 4—6 mm long; blade 1—$2^1/_4$ cm long, 10 mm to 2,5—3 cm broad, cordate-orbicular or cordate-ovate, apiculate or shortly cuspidate, rather thick, tomentose on both sides. Flowers

in a corymb-like raceme, which (including the peduncle) is 2—5 cm long, tomentose or shortly and softly hairy, as are also the $^1/_3$ to 1 in. long pedicels, and the 2—5 mm long ovate acute sepals. Corolla-tube $2^1/_2$—5 mm long; lobes 6—$6^1/_2$ mm long, oblong-ovate, acute, bearded along their margins. Outer coronal-lobes 1 mm long, subquadrate or oblong, obtuse, truncate or denticulate; inner coronal-lobes $5^1/_2$—8 mm long, fleshy, white, lanceolate, attenuate into subulate entire or bifid points, rising much above the staminal-column and incurved over it, and with an acute spur about 2 mm long, arising below the middle (1—1,75 mm above the base) of the staminal-column. Follicles $2^1/_2$—$5^1/_2$ cm long, ovoid, acuminate into a beak, more or less echinate, sometimes nearly smooth, minutely tomentose. Seeds 8 mm long, 5 mm broad, nearly flat, ovate, margined, minutely tomentose on both sides. — Flow. December to April.

D. l. D. i. D. a. sept. D. a. mer. Common in deep sandy places, rarely on rocky calcarious ground.

Local name: lebur-el-homâra (Delile); satme (Klunzinger); generally: ghalqa; ghalqaï.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Fezzan, Nubia, Abyssinia, Arabia and Persia.

426. (4.) **Cynanchum** Linn.

Calyx 5-partite. Corolla very deeply 5-lobed, rotate or rotate-campanulate; lobes overlapping to the left and straight or more or less twisted in bud. Corona arising from the staminal-column near or at its base, often membranous, annular, cup-shaped or tubular, toothed or lobed at the top or divided nearly or quite to the base into 5 entire or toothed lobes, with or without a tooth, lobe, thickening or keels within the tube in front of each of the principal teeth or lobes, or on the inner face or at the base of the lobes when the corona is divided. Staminal-column arising at or near the base of the corolla; filament part varying from almost none to a long slender stipe within the corona; anther-appendages membranous or slightly fleshy, inflexed over the apex of the style or connivent or erect around it. Pollenmasses pendulous, solitary in each anther-cell, affixed in pairs by short or long caudicles to the pollen-carriers. Style shorter or longer than the anther-appendages; apical part truncate, conical, or rostrate. Follicles smooth, winged, or setose. Seeds crowned with a tuft of hairs. — Stem twining or erect, leafy, rarely leafless, fleshy. Leaves opposite. Flowers rather small, in sessile or pedunculate corymbs, racemes or umbel-like or corym-

bose cymes, which are subaxillary or lateral between the bases of the petioles.

A large cosmopolitan genus.

1049. **Cynanchum acutum** L. Spec. Plant. I (1753), p. 310. — Boiss. Flor. Or. IV, p. 60. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 684. — Rchbch Ic., tab. 29. — Cynanchum monspeliacum L. Spec. Plant. I, p. 311. — Stem slender, twining, shortly hairy, or pubescent along two lines or all round. Leaves spreading, thin; petiole 1—2,5 cm long, pubescent; blade $2^1/_2$—6 cm long, 1 to $2^1/_2$ cm broad, elongate-ovate or oblong-lanceolate, acuminate, cordate at the base, both sides nearly glabrous, ciliolate. Flowers numerous, in short umbel-like racemes; peduncles 1—5 cm long, pubescent or shortly hairy; bracts 2—6 mm long, subulate or filiform, pubescent; pedicels 5—10 mm long, pubescent. Sepals $2^1/_2$ to 5 mm long, ovate or lanceolate, acute, pubescent. Corolla 1—2 cm in diam., rotate; lobes $5^1/_2$—8 mm long, 2—$2^1/_4$ mm broad, lanceolate-attenuate, obtuse, with a scattered pubescence on the back, puberulous within. Corona tubular, toothed at the top, arising near the base of the staminal-column; tube 2—$2^1/_4$ mm long, principal teeth 5, filiform or subulate, 5—$5^1/_2$ mm long, with 5 short exceedingly variable lobes alternating with them, these are subulate, tapering from the base or deltoid-ovate or abruptly contracted into a short linear recurved tooth, or 3—4-denticulate; within the tube are 5 other filiform or subulate teeth with ovate or deltoid bases, $^1/_2$—$^2/_3$ as long as the long teeth in front of which they arise. Staminal-column scarcely as long as the coronal-tube; anther-appendages broadly ovate, obtuse, inflexed or connivent over the convex or subtruncate apex of the style. — Flow. March to April.

M. ma. Abusîr; Mariut; Alexandria-West and -East. — **M. p.** Rosetta; Damietta. — **N. d. N. f. N. v.** Often on waste places. — **O.** Little Oasis.

Local name: muddeyd; 'ulleyq; libbeyn (Ascherson); 'allêyq (Schweinfurth).

Also known from Arabia Petraea, Palestine and Syria and other parts of the Mediterranean region.

427. (5.) **Solenostemma** Hayne.

Calyx 5-partite. Corolla deeply 5-lobed; lobes stellately spreading, narrow, overlapping to the left in bud, scarcely twisted. Corona arising from the angle between the corolla and the base of the staminal-column, cup-shaped, 5-lobed; lobes induplicate-cucullate, opposite the corolla-lobes. Staminal-column arising near the bottom

of the corolla, nearly as long as the corolla-lobes, clavate, the filament portion slender and longer than the corona; anthers oblong, tipped with a membranous appendage, which is inflexed over the style-apex. Pollen-masses pendulous, attached in pairs to the pollen-carriers by flexuous caudicles. Style not produced beyond the anther-tips, slightly convex at the apex. Follicles stout, ovoid-lanceolate, beaked, smooth. Seeds turgid, crowned with a tuft of hairs. — An erect plant, with woody stems, opposite leaves, and sublateral cymes of moderate sized flowers.

Species 1, extending through Egypt into Arabia. It is very closely allied to Cynanchum, and should perhaps, be united with that genus; the chief difference being that the lobes of the corona are placed opposite to the corolla-lobes, and the filament part of the staminal-column is long, slender and exserted from the corona.

1050. **Solenostemma Argel** (Del.) Hayne Arzneygew. IX (1853), tab. 38. — Boiss. Flor. Or. IV, p. 56. — DC. Prodrom. VIII, p. 533. — Aschers. Schweinf. Ill. Flor. d'Eg., p. 104 no. 680. — Cynanchum Argel Delile Illustr. Flor. d'Eg., p. 319 tab. 20 fig. 2. — Cynanchum oleaefolium Nectoux, Voy. Egypte, p. 20 tab. 3. — Argelia Delilei Decsne. in Ann. Sc. Nat. 2 sér. IX., p. 331 tab. 11 fig. E. Stems herbaceous, erect, 35—60 cm high, branching, very minutely downy, leafy. Leaves longer than the internodes, ascending; petiole 2—5 mm long; blade 2—2 1/2 cm long, 5—8 mm broad, thick and rigidly coriaceous when dry, probably fleshy when alive, varying from lanceolate to oblong-ovate, acute or subacute, cuneate at the base, minutely downy on both sides; midrib flat above, prominent beneath; veins indistinct. Cymes axillary, 2 1/2—5 cm long (including the 5—10 mm long peduncles), 2 1/2—5 cm in diam., densely many-flowered, minutely downy; bracts 5—6 mm long, 1—2 mm broad, linear-lanceolate, acute; pedicels 5—6 mm long. Sepals 5 mm long, 1 mm broad, oblong, acute, minutely downy. Corolla-tube 2 mm long; lobes 5 1/2—6 mm long, 1 mm broad, narrowly oblong, obtuse, spreading, white, glabrous or with a few scattered hairs on the back. Corona 1/3 as long as the corolla-lobes, submembranous, cup-shaped, obtusely 5-lobed to half-way down, and infolded at the sinuses between the lobes, which are deeply concave-hooded, from their margins being inflexed so as to meet or nearly so. Staminal-column 5—5 1/2 mm long, clavate, the part formed by the filaments very slender, as long as the anthers and exceeding the corona. Follicles solitary 5 cm long, 17 1/2—18 mm thick, ovoid-lanceolate, acuminate. Seeds turgid, ovoid, channelled down one face, minutely tuberculate, crowned with white hairs. — Flow. January to April.

D. a. sept. Wady Hawadât near Safâga (Klunzinger). — **D. a. mer.** Kene; Wady Lekhuma; Qoseyr.

Local name: argel; hargel.

Also known from Nubia (Wady Arab, between Suakin and Berber), along the Nile between Wady Halfa and New Dongala and Arabia. — It is used as an ingredient to Senna leaves.

428. (6.) **Oxystelma** R. Br.

Calyx 5-partite. Corolla with a very short tube enclosing the base of the staminal-column, and a broad saucer-shaped limp 5-lobed to halfway down; lobes deltoid, acute, valvate at the base and overlapping to the left at the apex in bud. Corona of 5 erect lanceolate-attenuate lobes, arising from the staminal-column, with a crumpled gibbosity at their base, which rests on truncate projections from the top of the filament-part of the staminal-column. Stamens arising from the base of the corolla-tube, united into a column around the ovary and style. Anthers erect, terminated by a short inflexed membranous appendage. Pollen-masses pendulous, elongate-clavate, compressed, attached in pairs by their attenuated ends to the short ovoid pollen-carriers. Style pentagonal, truncate or slightly convex at the apex, not exceeding the anthers. Follicles often solitary, inflated or lanceolate, smooth. Seeds ovate, compressed, crowned with a tuft of hairs.

Species 2, one endemic in Tropical Africa, the other extending into India, Ceylon, Tonkin and Java.

1051. **Oxystelma esculentum** R. Br. — var. **Alpini** N. E. Brown in Flor. Trop. Afr. IV, fasc. I (1902), p. 282. — Oxystelma Alpini Decsne. in DC. Prodrom. VIII, p. 543. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 104 no. 682. — Oxystelma aegyptiacum Decsne. in DC. Prodrom. VIII, p. 504. — Oxystelma Secamone K. Schumann in Engler-Prantl Natuerl. Pflanzenfam. IV, fasc. 2 p. 229. — Periploca Secamone Delile Illustr. Flor. d'Eg., p. 56 not of Linn. — Stem twining, with a deciduous white tomentum on the tips of the young shoots, soon becoming glabrous. Leaves spreading; petiole $5\,^1/_2$—8 mm long; blade $2\,^1/_2$—$6\,^1/_2$ cm long, 1—10 mm broad, linear or linear-lanceolate, acute, usually narrowed into the petiole, but sometimes rounded at the base, glabrous. Cymes pedunculate, subumbellately or racemosely 2—4-flowered, glabrous; peduncle 2—$2\,^1/_2$ mm long; pedicels 1—1,5 cm long, thickened at the apex. Sepals 4 mm long, ovate-lanceolate, acute. Corolla 1,5 cm or more in diam., saucer-shaped, 5-lobed to half-way down, with the margins of the broadly deltoid acute lobes and the mouth and

inside of the very short tube velvety pubescent, otherwise glabrous, white or pinkish, veined with purple at the base, whence 5 purple rays extend to the sinuses between the lobes. Coronal-lobes $5^1/_2$ mm long, lanceolate or deltoid-acuminate, entire, bifid, or trifid at the apex, gibbous and crumpled at the base. Style-apex slightly convex, not exceeding the anthers. Follicles $2^1/_2$—5 cm long, about 10 mm thick, not inflated, lanceolate, acute, glabrous. Seeds very small, 2,5 mm long or less, ovate, biconvex, very narrowly margined, grey. — Flow. January to March.

N. d. Alexandria; Rosetta; Damanhur; Tanta; Mansura; Zaqazig; Qalyûb; Cairo. — **N. f.** Medînet-el-Fayûm. — **N. v.** Siut; Esne; Aswân. — **N. v. mer.** Islands near Aswân. — **D. a. mer.** Kene; Qoseyr.

Local name: libbeyn.

Also known from Nubia; Arabia Petraea and Syria. — A form with acute, not-inflated follicles also occurs in India, but the seeds are larger, about 3 mm long. The quotation by Decaisne of Secamone, Alpinus, Pl. Ægypt. 53, with fig., and ed. Vesling (1640), 133 and 134 fig., and ed. (1735) 63, t. 48, is altogether wrong for the genus Oxystelma, as the plant there figured is Leptadenia heterophylla (Following N. E. Brown in Flor. Trop. Africa IV, fasc. II p. 383).

429. (7.) **Calotropis** R. Br.

Calyx 5-partite; sepals broadly ovate. Corolla 5-lobed to more than half-way down, rotate-campanulate or with reflexed lobes. Corona of 5 compressed lobes, shortly cleft into two lobules at their top, with an upcurved and involute spur at their base, adnate throughout their length to the staminal-column as far as the base of the anthers. Anthers short and broad, with short, broad, membranous appendages inflexed over the rim of the pentagonal apex of the style, which is depressed in the centre. Pollen-masses solitary in each anther-cell, pendulous, attached by short slender caudicles to the pollen-carrier. Follicles large, with a thick spongy-fibrous mesocarp, and parchment-like endocarp, not echinate. Seeds ovate, plano-convex, crowned with a tuft of hairs. — Large shrubs or small trees, with opposite subsessile broad leaves, and pedunculate umbelliform cymes arising from the side of the stem between the bases of the leaves. Flowers moderately large.

Species 4, 3 confined to India, South China, and the Malay Archipelago, the other extending into Africa.

1052. **Calotropis procera** (Ait.) R. Br. in Hort. Kew., ed. II (1798) p. 78. — Boiss. Flor. Or. IV, p. 57. — Decsne. in DC. Prodrom. VIII, p. 535. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 104

no. 681. — Bot. Reg., tab. 1792. — Calotropis heterophylla Decsne. in Ann. Scienc. Natur., ser. 2 vol. IX p. 329 not of Wallich. — Asclepias procera Willd. Spec. Plant. I, p. 1263. — Asclepias gigantea Jacq. observ. Bot. III, p. 17 tab. 69. — A stout shrub, 3—10 m high, all the youngest parts clothed with a white tomentum, becoming glabrous. Leaves on very short petioles or subsessile, $5^1/_2$ to 22 cm long, $2^1/_2$—14 cm broad, ovate, oblong-ovate, elliptic, or obovate, obtuse with a short abrupt point, base cordate, glabrous. Peduncles lateral and terminal, 1—6 cm long, stout, branched or somewhat elongating and producing successive subumbellate clusters of 3—10 flowers, the young parts white-tomentose, becoming more or less glabrous; bracts 1—1,5 cm long, lanceolate or ovate-lanceolate, acute, deciduous; pedicels 1—2,5 cm long. Sepals 5—$5^3/_4$ mm long, $2^1/_3$—$5^1/_4$ mm broad. Corolla campanulate, 1—2 mm in diam., 5-lobed to $^2/_3$ the way down; lobes $8^1/_2$—10 mm long, $6^1/_2$—$8^1/_2$ mm broad, ovate, acute, quite glabrous, white, with dark purple-brown tips. Coronal-lobes $5^1/_2$—6 mm long, 5—$5^1/_4$ mm broad at the base, compressed, oblong, obliquely truncate or rounded and cleft into two short lobes at the top, minutely scabrous or pubescent down the back, which has an upcurved and inrolled spur at the base. Follicles 6—9 cm long, $5^1/_2$—6 cm thick, subglobose, obliquely ellipsoid or ovoid, obtuse or depressed at the apex, with a thick spongy or somewhat inflated pericarp. Seeds 6—$6^1/_2$ mm long, 5 mm broad, plano-convex, narrowly margined, minutely tomentose. — Flow. December to April.

N. d. Cairo: Matarîya; Birket-el-Hagg. — **N. f.** Medînet-el-Fayûm; Kôm-Fâris; Begîg; Senûris; Tamîa; El-Wâdy; El-Hammâm; Kafr-Mukfût. — **N. v.** Island of Roda; Helwân; Kafr-el-Ayyât; Beni-Suêf; Feshn; Roda; Siut; Ekhmîm; Farshût; Karnak; Luksor; Aswân. — **O.** Siwa; Little Oasis; Farâfra; Dakhel; Great-Oasis. — **D. l. D. a. sept. D. a. mer.** Often on the borders of the desert and in the Wadies.

Local name: 'oshar; 'oshâr; the fruit: beyd-el-'oshar.

Also extends through Palestine, Tropical Africa and Arabia into India.

430. (8.) **Asclepias** Linn.

Calyx 5-partite. Corolla 5-lobed to below the middle or nearly to the base, campanulate, subrotate, or reflexed; lobes overlapping to the left in bud. Corona of 5 lobes arising from the staminal-column, opposite the anthers, variable in form, usually free to the base, but sometimes with the inflexed sides shortly adnate to the staminal-column, complicate-cucullate or channelled down the face, or at least with the margins at the apex middle or base of the

lobes inflexed and usually forming a tooth on each side, nerver flat, with or without a tooth, horn or crest on the face of the lobe within the cavity or between the inflexed sides; sometimes 5 minute or rudimentary simple or bifid teeth or pouch-like lobules alternate with the coronal-lobes at their base. Staminal-column arising from the bottom of the corolla. Anthers erect, with their membranous appendages inflexed over the apex of the style or erect. Pollen-masses pendulous, solitary in each anther-cell, attached to the pollen-carriers in pairs by short or long variously-shaped caudicles. Style truncate or depressed and often umbonate at the apex, not exceeding the anther-appendages, which partly cover it. Follicles variable in shape, smooth or softly echinate. Seeds crowned with a tuft of hairs. — Perennial herbs or shrubs, often with a tuberous rootstock or tuberous roots; juice milky. Stems simple or branched, usually erect, rarely diffuse. Leaves opposite or whorled. Flowers in pedunculate or sessile umbels, lateral at the nodes or terminal. — Gomphocarpus. R. Br.; Benth. et Hook. f. Gen. Pl. ii. 753.

A large genus, distributed throughout Africa and the warmer parts of North and South America, with 2 species in Arabia and the Orient, and 2 naturalized in most warm regions.

A. Corolla white . . . . . 1. **A. fruticosa.**
B. Corolla yellow . . . . . 2. **A. sinaica.**
C. Corolla scarlet-red . . . . . 3. **A. curassavica.**

1053. (1.) **Asclepias fruticosa** L. Spec. Plant. I (1753), p. 216. — Gomphocarpus fruticosus R. Br. in Mem. Wern. Soc. Edinb. I, p. 38. — Decsne. in DC. Prodrom. VIII, p. 557. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 686. — Boiss. Flor. Nr. IV, p. 61. — Rchbch. Ic. XVII, tab. 1071. — Gomphocarpus cornutus Decsne. in Ann. Scienc. Nat. 2 sér. Vol. IX, p. 324. — Asclepias crassifolia L. ex Decsne. in DC. Prodrom. VIII, p. 572. — A shrub 1—3 m high; branches erect, pubescent or puberulous. Leaves more or less ascending; petiole 5—8 mm long; blade 5—10 cm long, 5—18 cm broad, linear to linear-lanceolate, acute or acuminate, mucronate, or rarely aristate, cuneate-acute at the base, narrowly revolute along the margins, glabrous or puberulous, especially on the midrib beneath. Umbels pedunculate, lateral at the nodes and terminal, 6—10-flowered; peduncles 1—2½ cm long, pubescent; bracts 6 to 8 mm long, linear, acuminate, deciduous; pedicels 1—1,5 cm long, pubescent. Sepals 6 mm long, lanceolate, acuminate, pubescent. Corolla 5-lobed nearly to the base, white; lobes reflexed, 8 mm long, 5 mm broad, ovate-oblong, obtuse, glabrous on both sides, usually ciliate along one margin, but sometimes without cilia. Coronal-lobes arising about 1 mm above the base of the 5 mm

long staminal-column, and reaching to its summit, erect, complicate-cucullate, with the apical angles of the inflexed sides produced into recurving teeth, that rise considerably above the general level of the rest of the lobe and have their tips incurved towards each other; margins of the inflexed sides narrowly winged outside; no tooth or horn within. Follicles 5—8 cm long, ovate, attenuate into a beak, setose and minutely tomentose, but the setae nearly or quite glabrous. — Flow. January to May.

N. d. Cultivated and naturalized in gardens; Rosetta; Kafr Dowâr; Islands of Roda near Cairo, on fields-sides.

Local name: ʾarjel.

Also known from the other parts of North Africa, South and Tropical Africa, the Mascarene Islands, Madeira, Canaries, Arabia and South Europe, perhaps introduced in some of the localities.

1054. (2.) **Asclepias sinaica** Muschler combin. nov. — Gomphocarpus sinaicus Boiss. Diagnos. Plant. Or., Ser. I fasc. XI p. 80. — Flor. Or. IV, p. 61. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 687. — Gomphocarpus fruticosus Decsne. in Ann. Scienc. Nat. sér. II Vol. IX, p. 325 not of R. Br. — A woody much-branched shrub, 1—1,5 m high; branches divergent, white-tomentose, simple. Leaves opposite, spreading, $2^1/_2$—4 cm long, 1—2 mm broad, subsessile or with petioles 1—2 mm long, linear-lanceolate, acute, tapering at the base, revolute along the margins, glabrous, with the midrib adpressed pubescent beneath. Umbels several, lateral at the nodes along the upper part of the branches, pedunculate, 4—6 flowered; peduncles and pedicels 5—10 mm long, white-tomentose. Sepals $1^1/_2$—3 mm long, narrowly lanceolate or oblong-lanceolate, acuminate, pubescent. Corolla 5-lobed nearly to the base, reflexed, yellow; lobes about 6 mm long and $1^1/_2$ mm broad, elliptic-ovate, acute, glabrous on both sides, short-ciliate along one margin. Coronal-lobes arising about 1 mm above the base of the staminal-column and reaching to its summit, apparently yellowish, 1 mm long, 1 mm broad, complicate, cucullate, subquadrate, with the dorsal margin shorter than the inner margins in side view, so that the real apex of the lobe does not rise so high as its inflexed sides, the apical angles of the inflexed sides produced into abruptly reflexed falcate teeth rising a little above the apical margin of the lobe, no tooth or horn within the lobe. Staminal-column $3^1/_2$ mm long; anther-appendages roundish-ovate, very obtuse, inflexed over the truncate apex of the style. Follicles ellipsoidal with a short beak, somewhat sparsely bristly, mealy-tomentellous between the red bristles. — Flow. December to March.

D. i. Wady-el-Hagg; dersert-et-Tih. — **D. a. sept.** In the Wadies often in shaded situations.

Local name: herdjel (Schimper); ghalqet-ed-dîle (Wilkinson); gheyl (Schweinfurth).

Also known from Arabia Petraea and Palestine.

1055. (3.) **Asclepias curassavica** L. Spec. Plant. I (1753), p. 215. — Bot. Reg. I, tab. 81. — Decsne. in DC. Prodrom. VIII, p. 566. — Stems 60 cm to 1 m high, glabrous. Leaves spreading; petiole 1—2,5 cm long; blade $5^1/_2$—$10^1/_2$ cm long, 1—$2^1/_4$ cm broad, lanceolate, acuminate, cuneate-acute at the base, glabrous. Umbels lateral and terminal, pedunculate, 6—12-flowered; peduncles 2—6 cm long, puberulous; pedicels 1—1,5 cm long, more or less puberulous. Sepals 5 mm long, lanceolate, acute, reflexed, puberulous. Corolla reflexed, scarlet-red; lobes $5^1/_2$—6 mm long, $2^1/_2$ cm broad, oblong, acute, glabrous. Coronal-lobes arising 2 mm above the base of the staminal-column and overtopping it by about $^1/_3$ of their length, $2^1/_2$—5 mm long, complicate, obliquely truncate, with a horn arising from the base within, protruding for half its length, and curved forward over the top of the staminal-column, yellow. Anther-appendages orbicular inflexed over the apex of the style. Follicles mostly solitary, 6—$6^1/_2$ cm long, about 10 mm thick, lanceolate, acuminate into a beak, and tapering into a stipe at the base, smooth, glabrous. Seeds 6 mm long, 5 mm broad, elliptic, plano-convex, with a broad thin margin, minutely tuberculate-lineate, dark brown. — Flow. March to April.

N. d. often cultivated in gardens and naturalized.

Local name: 'arjel.

A native of Tropical America, now widely spread in the Tropics.

431. (9) **Leptadenia** R. Br.

Calyx 5-lobed to the middle or nearly to the base. Corolla deeply 5-lobed, rotate or with a very short campanulate tube and spreading lobes, valvate in bud, pubescent or bearded within. Corona of 5 short, transverse or rounded, fleshy lobes, tipped with a tuft of hairs, or with a subulate hairy point, inserted at the sinuses of the corolla. Staminal-column arising from the bottom of the corolla, sometimes with a slightly prominent inconspicuous undulate fleshy ring at the base; anthers incumbent on the top of the style, subhorizontal or suberect, without an appendage. Pollen-masses subhorizontal or suberect, solitary in each anther-cell, pellucid at the apex, attached in pairs by short caudicles to the pollen-carriers. Follicles smooth. Seeds crowned with a tuft of hairs. — Shrubs,

with twining or erect, rigid, much branched, rush-like stems. Leaves opposite or none, very variable in the same species. Cymes umbel-like, lateral between the bases of the leaves or subaxillary, subsessile or pedunculate, many-flowered; flowers small.

Species 5 or 6 in Africa; one of the African species extends through Egypt into Arabia and India, besides 1 other in India and 1 in Madagascar.

A. Leafy twiners . . . . . 1. **L. heterophylla.**
B. Leafless shrubs . . . . . 2. **L. pyrotechnica.**

1056. (1.) **Leptadenia heterophylla** Decsne. in Ann. Scienc. Nat., 2. ser. Vol. IV (1835) p. 270. — Boiss. Flor. Or. IV, p. 1197. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 105 no. 689. — Leptadenia Forskålei Decsne. in Ann. Scienc. l. c., p. 269 tab. X. — DC. Prodrom. VIII, p. 628. — Leptadenia abyssinica Decsne. in DC. Prodrom. VIII, p. 628. — Leptadenia Delilei Decsne. in DC. Prodrom. VIII, p. 628. — Cynanchum heterophyllum Del. Cent. Plant. Afr. Voy. Meroe, p. 47 tab. 63 fig. 4. — Stem twining, glabrous. Leaves very variable; petiole 5—25 cm long; blade 1—6 cm long, 0,5—2 cm broad, sometimes linear or linear-lanceolate, acute or acuminate, with a hastate base and rounded auricles, but usually varying from lanceolate or ovate and acuminate at the apex, to elliptic, obtuse and apiculate or acute at the apex, cuneate, rounded, subtruncate or cordate at the base, glabrous on both sides. Umbels subaxillary, sometimes two from the same node, pedunculate, several-flowered; peduncles 5 to 12 mm long, glabrous; pedicels 6—9 mm long, minutely puberulous. Calyx campanulate, 8 mm long, puberulous, 5-lobed to half way down; lobes ovate, acute. Corolla 5—6 mm in diameter; tube as long as the calyx; lobes 2—3 mm long, very spreading, oblong-ovate or linear-lanceolate, subacute, somewhat keeled on the apical half, slightly reflexed along the margins, canescent on the back, pubescent on the face, except a median depressed, glabrous line at their base. Coronal-lobes inserted at the sinuses of the corolla, minute, fleshy, rounded, glabrous, dorsally tipped with a tuft of rather long hairs. Follicles solitary, 5—8 cm long, 8—10 mm thick, lanceolate, obtusely acuminate, smooth, glabrous. Seeds 5—6 mm long, narrowly ovate-lanceolate, concave-convex, glabrous. — Flow. March to April.

N. v. mer. Islands near Aswân.

Also known from Tropical Africa and Arabia.

1057. (2). **Leptadenia pyrotechnica** (Forsk.) Decsne. in Ann. Scienc. Nat., Ser. 2 Vol. IX p. 269—270. — Boiss. Flor. Or. IV, p. 63. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105 no. 688. — Cynanchum pyrotechnicum Forsk. Flor. aeg.-arab., p. 53. — Delile Illustr. Flor.

d'Eg., p. 54 tab. 20 fig. 3. — Sarcostemma pyrotechnicum Roem. and Schult. Syst. VI, p. 116. — Microloma pyrotechnicum Spreng. Syst. I, p. 855. — A much branched leafless bush (rarely with leaves on the young shoots), attaining a height of 1—3 m; trunk 8 to 12 cm thick; branches erect, slender, terete, straight, puberulous on the tips of the growing shoots, soon becoming glabrous; 1—2 nodes at the growing apex alone provided with minute subulate leaves 2—5 mm long, which soon fall away, or rarely remain on the young shoots and grow out to 2—5 cm long, 1—$2^1/_2$ mm broad, linear, acute. Umbels subaxillary, several-flowered; flowers successively developing so that a short floral axis up to 5 mm long is sometimes formed; peduncles 2—5 mm long; pedicels 1—2,5 mm long, puberulous. Calyx 1,5 mm long, 5-lobed to the middle, puberulous; lobes ovate, subacute. Corolla 5—$5^1/_2$ mm in diam., subrotate; tube funnel-shaped, as long as the calyx; lobes 2,5 mm long, ovate, acute, thickened in the apical half, slightly reflexed along the margins, glabrous outside, pubescent inside, with the tube and a central line at the base of the lobes glabrous. Coronal-lobes at the sinuses of the corolla very small, fleshy, tubercle-like or semicircular, pubescent at the apex; staminal-corona minute, annular, close to the base of the 1 mm long staminal-column. Follicles $6^1/_2$—$8^1/_2$ cm long, .5 mm thick, terete, attenuate into a long beak. Seeds 8 mm long, 2—$2^1/_4$ mm broad, narrowly lanceolate, plano-convex, glabrous. — Flow. December to May.

D. l. Es-Sabrîgâl; Beni Selâma; Kafr Hakîm; Abu Roash; Pyramids of Zawîyet-el-'Aryân; Pyramids of Abusîr. — **D. a. sept.** Serapeum; Bîr-Suez; Tura; Great Petrified Forest. — **D. a. mer.** Qoseyr.

Local name: markh.

Extends through the Sahara, Tropical Africa, Arabia into the drier parts of India.

432. (10). **Caralluma.**

Calyx 5-partite. Corolla rotate, broadly cup-shaped or with a distinct campanulate or subglobose tube, 5-lobed; lobes varying from broadly ovate to linear-attenuate, valvate in bud. Corona double, arising from the staminal-column; outer corona sometimes annular or cup-shaped, entire, crenulate, denticulate, 5—10-(rarely 20) toothed or lobulate, adnate to the backs of the inner coronal-lobes at their base or connected to them by narrow partitions; sometimes of 5 lobes more or less adnate by their margins to the sides or backs of the inner coronal-lobes forming 5 small pouch-like cavities alternating with the anthers, or spreading, rarely quite free to the

base, usually more or less bifid, sometimes so deeply that the whole corona (inner and outer) appears to consist of 5 trifid lobes; inner coronal-lobes incumbent on the backs of the anthers and not longer than them, or produced into erect connivent or recurved tips, with or without a dorsal tooth or horn near or at their base, where they are dorsally connected with the outer corona. Staminal-column arising from the bottom of the corolla, short; anthers horizontally inflexed or ascending, not appendaged. Pollen-masses horizontal or ascending, solitary in each anther-cell, pellucid along the inner margin or at the apex, attached to the pollen-carriers in pairs by short and rather slender caudicles; pollen-carriers with or without a wing-like expansion on each side, black or brown. Style not produced beyond the anthers, truncate at the apex. Follicles narrowly fusiform, linear-terete or trigonous, smooth. Seeds crowned with a tuft of hairs. — Succulent perennial herbs, branching, leafless. Stems 3—6-angled, thick and fleshy, obtusely tubercled or acutely toothed along the angles. Flowers in few or many-flowered fascicles or sessile umbels at the base, apex, or along the sides of the stems between the angles, small or of moderate size, pedicellate or subsessile.

Species numerous, distributed throughout Africa into the South of Europe, and through Arabia into India.

1058. **Caralluma europaea** N. E. Brown in Garden. Chronicle (1892) II, p. 396. — Stapelia europaea Guss. Notiz. 1832 no. 37. — Supplem. Flor. Sic. Prodrom., p. 65. — Stapelia Gussoniana Jacq. ex Lindl. in Bot. Reg., tab. 5087. — Bucerosia europaea Hook. fil. Bot. Mag., tab. 6137. — Dwarf succulent plant, 12—30 cm high or sometimes more, of tufted growth, with numerous 4-angled glabrous stems, 1—1,75 cm thick, toothed on the angles, the teeth, bearing minute rudimentary leaves about 2 mm long. The numerous flowers are disposed in hemispherical umbels about 5—9 cm in diameter, terminating the stems. The pedicels are from 2—4 mm long, glabrous, green, speckled with dull purple. The sepals are lanceolate-acuminate, minutely ciliate-denticulate, glabrous. The corolla is dull brownish purple, 2—2,5 cm in expanse, nearly flat, five-lobed to about half-way down, the lobes ovate-acute; the outer corona consists of five simple linear lobes, incumbent on the back of the anthers and adnate behind the sinuses of the outer corona; they usually have two slight longitudinal grooves, and irregularly three-toothed or subentire at the apex. — Flow. March to April.

M. ma. Marmarica: Matruqa; Bîr-el-Kadwa; Alexandria-West.

Also known from Algeria, Tunisia, Cyrenaica, Western Marmarica, the islands of Lampedusa and Linosa, and South Spain.

Tubiflorae.

Herbs or sometimes shrubs or trees, the plants of some families parasitic. Leaves with dilated blades, or scale-like. Flowers mainly perfect, variously disposed. Calyx of partially united sepals. Corolla gamopetalous, regular or irregular. Androecium of as many stamens as there are corolla-lobes, or fewer, sometimes partially represented by staminodia, sometimes partially obsolete. Gynoecium of 2 distinct or several united carpels. Fruit a capsule, berry, drupe, or a group of nuts, or utricle-like.

91. Convolvulaceae.

Flowers regular. Calyx free, persistent, of 5 distinct much imbricated sepals, rarely united in a 5-toothed or 5-lobed calyx. Corolla campanulate or funnel-shaped or rarely rotate or with a cylindrical-tube, the limb usually spreading, 5-angled or 5-lobed, folded in the bud or very rarely imbricate. Stamens 5, inserted in the tube, alternate with the lobes or angles of the corolla, often of unequal length; anthers versatile or almost erect, with 2 parallel cells opening by longitudinal slits. Ovary free, 2, 3 or 4-celled, rarely divided into 2 or 4 distinct carpels, with 1 or 2 erect or ascending ovules in each cell or carpel or 1-celled with 2 or 4 ovules; style single or more or less divided into 2 entire or 2-fid branches or styles. Fruit either a capsule opening in 2, 3 or 4 or twice as many valves, leaving the dissepiments attached to the axis, or opening transversely, or bursting irregularly, or succulent and indehiscent. Seeds with a small quantity of mucilaginous albumen or without any; cotyledons usually very much folded, rarely straight or imperceptible. — Herbs, often twining or rarely shrubs, woody twiners or even trees, or (in Cuscuta) leafless twining parasites. Leaves alternate. Inflorescence various, usually axillary and more or less cymose or peduncles 1-flowered. Bracts and bracteoles usually small or deciduous, rarely large and persistent. Flowers often large and showy, rarely very small.

A considerable Order, widely spread over almost every part of the globe, but most abundant in warm countries.

A. Non-parasitic plants with developed green leaves.

I. Pollen grains smooth.

a) Tribe I: *Dicranostyleae.* — Flowers small, axillary, solitary or in few- to many-flowered axillary dichasia. Sepals free, sometimes accrescent. Corolla funnel-shaped so campanulate; aestivation contorto-plicate. Ovary

usually 2-celled, 4-ovuled. Styles 2 or single and bifid. Fruit a capsule with generally valvular dehiscence, 1—4-seeded. — Herbs or shrubs; stems prostrate, erect or climbing.

1. Stamens and style exserted . . . . . 1. **Cressa.**
2. Stamens and style not exserted . . . . 2. **Seddera.**

b) Tribe II: *Convolouleae.* — Flowers axillary, solitary or dichasial. Sepals free, rarely accrescent. Corolla funnel-shaped, subentire; midpetaline areas not well defined; aestivation contorto-plicate. Stamens and style included. Filaments dilated at the base and glandular hairy. Ovary 2-celled, 4-ovuled. Style long, entire. Fruit a valvate capsule, 2-celled, 4-seeded, rarely with opercular or irregular dehiscence or indehiscent.

1. Flowers subtended by a pair of large foliaceous bracts . . . . . 3. **Calystegia.**
2. Flowers not thus subtended . . . . . 4. **Convoloulus.**

II. Pollen grains spinose.

a) Tribe III: *Ipomoeeae.* — Flowers axillary, solitary or in few- to many-flowered cymes, often large and showy. Sepals sometimes much enlarged in fruit. Corolla generally funnel-shaped, sometimes more or less campanulate, hypocrateriform or urceolate; midpetaline areas well defined; aestivation contorto-plicate. Stamens and styles included, or sometimes exserted. Filaments with dilated glandular-hairy base. Ovary generally 2-celled and 4-ovuled. Style simple; stigma capitate, entire or bilobed, rarely oblong. Fruit generally a 4-valved capsule . . . . . 5. **Ipomoea.**

B. Parasitic plants with filiform leafless stems . . . . 6. **Cuscuta.**

433. (1.) **Cressa** Linn.

Sepals coriaceous, obovate, subequal, imbricate. Corolla-tube campanulate; lobes ovate, imbricate in bud, spreading. Stamens and styles exserted; filaments filiform, glabrous; anthers oblong. Disk inconspicuous. Ovary 2-celled, 4-ovuled; styles distinct from the base; stigmas capitate. Capsule 2—4-valved, usually 1-seeded. Seed glabrous, shining; cotyledons linear, plicate. — A much-branched, lowgrowing, suffrutescent perennial. Leaves small, entire, sessile.

Flowers small, aggregated at the tip of the branchlets in bracteate spikes.

One or a few closely allied species.

1059. **Cressa cretica** L. Spec. Plant. I (1753), p. 223. — Boiss. Flor. Or. IV, p. 114. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 767. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 220. — Choisy in DC. Prodrom. IX, p. 440. — Stems slender, terete, woody, a few cm to 30—40 cm long, with numerous spreading or ascending, hairy, densely-leaved branchlets. Leaves ovate to lanceolate, acute, sessile, 5—6 mm long. Flowers aggregated in dense spikes at the end of the branchlets, each subtended by a reduced leaf. Calyx hairy, $2^1/_2$ mm long. Sepals concave, obovate, subacute. Corolla white, about $5^1/_2$ mm long; tube cylindrical, enveloped by the calyx; lobes narrowly ovate, about as long as the tube, hairy on the outside. Stamens rather longer than the corolla. Capsule ovoid, $2^1/_2$—5 mm long. Pericarp thin, brittle. Seed ovoid, glabrous. — Flow. December to March.

M. ma. Marmarica; Matruqa; Dakalla; Mariut; Alexandria-West and -East; Mandara. — **M. p. N. d. N. f. N. v. D. l. D. i. D. a. sept. D. a. mer.** Everywhere common plant in sandy and salty places.

Local name: nadâwe (Fork.); abû hosâba (Schweinfurth); mulley; sebakh (Ascherson); nû-'em (Ascherson).

Also known from all the other parts of North Africa, Tropical Africa, Southern Europe, Orient and everywhere in damp sandy places especially by the sea, in both hemispheres.

434. (2.) **Seddera** Hochst.

Sepals acute or obtuse, subequal or the outer ones slightly larger. Corolla funnel-shaped; lobes very short, or longer. Stamens inserted low down in the corolla-tube; filaments filiform, dilated at the base and often appendaged; anthers oblong. Ovary 2-celled, 4-ovuled, hairy at the apex; style bifid almost or quite to the base; stigmas more or less peltate and orbicular, sometimes bilobed. Capsule 4-valved, valves thinly rigid. Seeds dark brown or black, glabrous; cotyledons broad, plicate. — Small shrubs, with prostrate to suberect branches, sometimes spinescent. Leaves entire, small. Flowers axillary, solitary or aggregated into terminal spikes or into stalked or sessile dense few-flowered cymes. Corolla small, 12 mm or less in diam.

Species about 15, chiefly African and Arabian.

1060. **Seddera latifolia** Hochst. and Steud. in Flora (1844), Beilage. 8 tab. 5 fig. B—C. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 758. — Choisy in DC. Prodrom. IX, p. 440. — Breweria argentea Terrac. in Ann. Istit. Bot. Roma V, p. 104. — Breweria evolouloides Vatke in Linnaea XLIII, p. 523 not of Choisy. — A much-branched, low undershrub with slender, woody branchlets, clothed with dense, short, velvety white pubescence. Leaves broadly elliptic, rigidulous, shortly stalked, 5—8 mm long, clothed with short adpressed white hairs above and beneath, apex and base generally rounded, the former sometimes inconspicuously mucronate. Flowers subsessile, solitary in the axils of the leaves or aggregated into short bracteated terminal spikes. Sepals subequal, obovate, coriaceous and rigid with acute herbaceous apex, 5 mm long, back pubescent like the leaves. Corolla not exceeding the calyx; limb 5 mm in diam. when expanded; tips of midpetaline areas densely hairy. Stamens equal, glabrous; filaments dilated at the base, with short rounded appendages. Ovary obovoid, upper portion hirsute; style divided to the base; stigmas orbicular. Capsule $2^1/_2$ mm in diam., splitting into 4 rigid valves. Seeds narrowly ovoid, blackish, glabrous, 5 mm long. — Flow. March to April.

D. a. mer. Wady Abû Agâg, North of Aswân (Schweinfurth).

Also known from Tropical Africa, Socotra and through Arabia to Scind and the Pundjab.

435. (3.) **Calystegia** R. Br.

Sepals subequal or the inner ones rather smaller. Corolla usually large and showy, campanulate or funnel-shaped, slightly lobed. Stamens inserted low down in the corolla-tube, not exserted; filaments dilated at the base, anthers oblong. Disk prominent, annular. Ovary 1-celled or with an imperfect septum; style filiform; stigmas two, flattened, ovate or elliptic. Capsule usually 1-celled, 4-valved. Seeds 4, glabrous; cotyledons broad, plicate, often bifid. — Prostrate or twining herbs. Leaves usually entire. Peduncles axillary, 1-flowered; bracts foliaceous, usually large.

Species 8 or more, inhabiting the temperate and subtropical zones of both hemispheres.

1061. **Calystegia hederacea** Wall. in Roxb. Flor. Ind. (ed Carey) II (1824), p. 94. — Choisy in DC. Prodrom. IX. p. 434. — An annual, with slender climbing stems. Leaves long petioled, deltoid-hastate, $2—2^1/_2$ cm long, with large spreading or deflexed entire or toothed basal auricles, membranous, glabrous. Flowers solitary; peduncle long, often exceeding the leaves; bracts foliaceous, ovate, obtuse,

enveloping the calyx. Calyx glabrous, 6 mm long; sepals ovate, obtuse or minutely mucronate, the two outer ones larger than the three inner ones and rounded at the base. Corolla broadly campanulate, nearly 2,5 cm long and broad. Filaments dilated at the base. Ovary oblong, 1-celled. Stigmas lanceolate. — Flow. January.

M. ma. Ramle, only two specimens, naturalized. — **N. d.** Sparingly cultivated in fields.

Also known from Tropical Africa, India and China.

436. (4.) **Convolvulus** L.

Sepals generally subequal, obtuse or acute. Corolla funnel-shaped, colour various, midpetaline areas not well defined, passing gradually into the sepaline areas. Stamens inserted low down in the corolla-tube; filaments generally unequal, filiform. Ovary 2-celled, 4-ovuled; style filiform; stigmas two, filiform. Capsule 2-celled, usually 4-valved, 4-seeded. Seeds black or brown, glabrous, or pubescent, sometimes tuberculate; cotyledons broad, plicate. — Herbs or shrubs with climbing, prostrate or erect stems. Leaves simple. Flowers solitary, in few-flowered cymes or in dense involucrate heads.

A. Perennials.

I. Shrubby plants with spinescent or persistent twigs. Ovary glabrous.

a) Flowers sessile.

1. Flowers solitary or 2—3 together . . . **1. C. Hystrix.**
2. Flowers clustered, in interrupted spikes . . . . . **2. C. lanatus.**

b) Flowers pedicelled . . . . . **3. C. Dorycnium.**

II. Unarmed plants.

a) More or less shrubby plants.

1. Ovary hirsute . . . . . **4. C. lineatus.**
2. Ovary villous . . . . . **5. C. oleaefolius.**

b) Woolly, at length rusty, stems thickened.

1. Corolla as long as or a little longer than the calyx . . . . . **6. C. Schimperi.**
2. Corolla 2 1/2 times longer than the calyx . . . . . **7. C. secundus.**

c) Slender herbaceous plants.

1. Not climbing.

α) Flowers pedicelled . . . . . **8. C. pilosellaefolius**
β) Flowers sessile . . . . . **9. C. microphyllus.**

2. Climbing plants.

α) Leaves ovate.
* Peduncles much longer than the corolla . . . . . 10. C. althaeoides.
** Peduncles much shorter than the corolla . . . . . 11. C. arvensis.
β) Leaves cordate-ovate . . . . . 12. C. fatmensis.
B. Annuals. Peduncles 1-flowered . . . . . 13. C. siculus.

1062. (1.) **Convolvulus Hystrix** Vahl Symb. I (1791), p. 16. — Boiss. Flor. Or. IV, p. 88. — Choisy in DC. Prodrom. IX, p. 400. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 106 no. 694. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Convolvulus spinosus Forsk. Flor. aeg.-arab., p. 106 not of Burm. — Convolvulus armatus Del. Illustr. Flor. d'Eg., p. 201 tab. 18. — An erect shrub; branchlets numerous, short, spreading, hairy, ending in sharp spines. Leaves small, stiff, sessile, 9 mm long or less, rarely reaching 5 mm broad, oblong, tapering slightly towards the subobtuse apex, silky. Flowers axillary, sessile, usually solitary. Calyx 6 mm long, clothed with short brown hairs; 2 outer sepals larger, orbicular; 3 inner ones ovate. Corolla blue, hairy on the midpetaline areas, little longer than the calyx, nearly 10 mm long. Capsule not seen. — Flow. March to April.

D. l. Wady Esne; Wady Shubrûq near Edfu. — **D. a. sept.** Gebel ahmar near Cairo; Wady Dugla; Suez. — **D. a. mer.** Wady Lekhuma.

Local name: shibrim; shibriq; shubruq (in Upper Egypt.).

Also known from Tropical Africa, Arabia and Syria.

1063. (2.) **Convolvulus lanatus** Vahl Symb. I (1791), p. 16. — Boiss. Flor. Or. IV, p. 89. — Choisy in DC. Prodrom. IX, p. 400. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 695. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Aschers. Flor. Rhinocol., p. 800 no. 176. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 216. — Convoloulus Cneorum Forsk. Flor. aeg.-arab., p. LXIII not of Linn. — Convoloulus Forskålei Del. Ill. Flor. d'Eg., p. 203 tab. 18. — Sibth. and Smith Flor. graec., tab. 202. — Convolvulus sericeus Choisy in DC. Prodrom. IX, p. 400 not of Burm. — A shrubby plant, 20—40 cm high or sometimes somewhat more, newer branches woolly, older ones naked. Leaves grey, puberulent, oblong-spathulate, 1,5 to 4 cm long, tapering to a petiole, the upper ones sessile, lanceolate. Flowers clustered, sessile, forming interrupted spikes; sepals villous; corolla pinkish-white, silky, 2—3 cm long, twice to thrice as long as the calyx. — Flow. December to March.

M. ma. Marmarica: Ras-el-Kenâ'is; Mariut; Alexandria-West and -East to Abukîr. — **M. p.** Tawîl-es-sakkâm; Bîr-el-Mesa'uidât;

Rosetta; Qatîya to el-'Arîsh. — **D. l.** A common plant in deep sandy places. — **D. i.** Nefîsh; Ismailia. — **D. a. sept.** Cairo; Gebel ahmar; Great Petrified Forest; often in the mouths of the Wadies. — Everywhere a favorite forage for camels.

Local name: beyâd (Forsk.); breheyma (Schimp.); rehâma (Schweinfurth); rekhâm (Ascherson).

Also known from Arabia Petraea.

1064. (3.) **Convolvulus Dorycnium** L. Spec. Plant. I (1753), p. 224. — Boiss. Flor. Or. IV, p. 91. — Sibth. and Smith Flor. graec., tab. 201. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — A shrubby plant, 50—80 cm high, or sometimes somewhat more, appressed-hirsute, divaricately branched, intricate, panicled. Leaves sessile, the lower ones oblong-spathulate to elliptical, 2—6 cm long, the upper ones linear. Cymes terminal, 1—3-flowered, on a long peduncle; pedicels with 2, minute bracteoles a little below the flower; sepals round-obovate, obtuse or retuse, mucronate; corolla 2 cm long, pink, five times as long as the calyx. — Flow. December to March.

M. ma. Alexandria-West.

Also known from Greece and Orient.

1065. (4.) **Convolvulus lineatus** L. Spec. Plant. I (1753), p. 224. — Boiss. Flor. Or. IV, p. 97. — Rchbch. Ic. XVIII tab. 134 fig. IV. Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 697. — An undershrub, 5—50 cm high, appressed-silky, many-stemmed from a woody root; stems ascending or procumbent, simple or somewhat branched. Leaves oblong to linear, 2—4 cm long, the lower long-tapering to a petiole. Cymes at end of branches, 3—1-flowered; pedicels shorter than the calyx; sepals oblong-lanceolate, membranous at the base, herbaceous at the tip; corolla pink, 1,5—2 cm long, twice to twice and a half as long as the calyx. — Flow. January to March.

M. ma. Alexandria near Dekheyla (Ehrenberg).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Southern Europe, Caucasia, Asia Minor, Syria, Mesopotamia and Persia.

1066. (5.) **Convolvulus oleaefolius** Desr. ap. Lam. Encyclop. III (1789), p. 552. — Boiss. Flor. Or. IV, p. 93. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 696. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 217. — Convolvulus Tournefortii Sieb. exsicc. in Hort. Berol. — Convolvulus linearis Bot. Mag. tab. 289 not of Linnaeus. — Convolvulus lineatus Sibth. and Smith Flor. graec., tab. 199 not of Linn. — Appressed-silky, shrubby at the base; branches herbaceous erect, elongate, leafy, simple or strictly branching; lower leaves linear-spathulate, the other ones narrow-linear, obtuse;

terminal flowers loosely cymose-subcapitate, pedicels shorter than the calyx; bracts subulate; sepals dense hirsute lanceolate, corolla rose-coloured, 4-times longer than the calyx; ovary hirsute. — Flow. January to March.

M. ma. Marmarica: Matruqa; Mariut; Abusîr; Alexandria-West.

Tripolitania, Cyrenaica, Western Marmarica and Southern Europe.

1067. (6.) **Convolvulus Schimperi** Boiss. Diagnos. Plant. Orient., Ser. I fasc. XI (1849), p. 81. — Flor. Or. IV, p. 101. — A perennial plant, 30—50 cm high or sometimes somewhat more, hispid-woolly; stems prostrate or ascending. Leaves plaited, wavy-margined, 2 to 6 cm long, oblong-spathulate, tapering to a long petiole. Flowers 3—5 together in dense heads, on peduncles nearly as long as leaves; bracts and sepals lanceolate at base, linear-caudate at tip, very hispid; corolla white, 1 cm long, scarcely longer than the calyx. — Flow. December.

D. a. sept. Suez (Bornmüller).

Also known from Arabia Petraea and Tropical Arabia.

1068. (7.) **Convolvulus secundus** Desr. in Lam. Encyclop. III (1789), p. 100 not R. P. — Boiss. Flor. Or. IV, p. 101. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 698. — Convolvulus salviaefolius Sieb. ex exsicc. in Herb. Berol. — A perennial plant, 36—60 cm high or sometimes somewhat more, silky-woolly; stems prostrate or ascending, leafy. Leaves on one side of the stem, wrinkled, the lower ones oblong-spathulate, petioled, 4—5 cm long, the others oblong to oblong-lanceolate, sessile. Flowers 2—5 together in short-peduncled or sessile clusters, forming a one-sided, interrupted, leafy spike; bracts and sepals lanceolate; corolla white, 2 cm long, thrice as long as the calyx. — Flow. March.

M. p. El-ʿArîsh? (not observed by Professor Ascherson!). — **R.** Suez? (only collected by Kotschy!).

Also known from Palestine and Syria.

1069. (8.) **Convolvulus pilosellaefolius** Desr. in Lam. Encyclop. III (1789), p. 107. — Boiss. Flor. Or. IV, p. 103. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 699. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Convolvulus Sogdianus Bunge in Plant. Lehm., p. 395. — A perennial plant, 50—80 cm high or more, branching from the neck, branches ascending or prostrate, more or less sparingly appressed-hirsute, bearing flowering branches from middle up. Leaves pale-green, hirsute, margin often repand-wavy, the lower ones oblong, tapering to a petiole, the upper ones sessile, lanceolate, acute, sometimes subcordate at the base. Flowers 1—5 together, cymulose,

the cymes forming a loose raceme, pedicels shorter than the calyx; sepals hairy, elliptical, acute, herbaceous at the tip; corolla pink, twice to thrice as long as the calyx, 1—1,3 cm long, hairy at the angles; capsule ovate; glabrous. — Flow. March to April.

D. i. Gebel Ekhfên. — **O.** Gyenna in the Great Oasis (Schweinfurth).

Also known from Palestine and Syria.

1070. (9.) **Convolvulus microphyllus** Sieb. ex Spreng. System. Veg. I (1825), p. 611. — Boiss. Flor. Or. IV, p. 103. — Choisy in DC. Prodrom. IX, p. 402. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 700. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Convolvulus scindicus Boiss. Diagnos. Plant. Or., Ser. 2 fasc. III, p. 123 not of Stocks. — Perennial, suffruticose. Stems slender, terete, densely tufted, spreading, more or less softly hairy. Cauline leaves generally less than 9 mm long, rarely 12 mm, oblong or oblong-lanceolate, obtuse, subsessile, narrowed to the base, hairy on both sides. Basilar leaves narrowly spathulate, reaching nearly 2 cm long. Flowers 1—3 together from the upper nodes of the stem, generally nearly sessile, sometimes stalked, sometimes on short flowering branches. Sepals ovate, acuminate, about $5^1/_2$ mm long, densely clothed with brown hairs. Corolla pinkish-white, funnel-shaped, twice as long as the calyx, hairy outside. Capsule small, globose. Seeds glabrous. — Flow. March to April.

O. Little Oasis; Farâfra; Dakhel; Great Oasis. — **D. l.** Rare in sandy places. — **D. i.** Ismailia. — **D. a. sept. D. a. mer.** Common on calcarious ground.

Local name: ghobeyrâ (Schweinfurth).

Also known from Sinai, Syria and Palestine.

1071. (10.) **Convolvulus althaeoides** L. Spec. Plant. I (1753), p. 222. — Boiss. Flor. Or. IV, p. 106. — Rchbch. Ic. XVII, tab. 138 fig. 1—2. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 701. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 218. — Aschers. Flor. Rhinocal., p. 800 no. 177. — A perennial plant., 50 cm to 1 m high or more, appressed-villose or hirsute, diffuse or climbing. Lower leaves long-petioled, cordate-ovate, obtusely crenate or lobed; upper ones pedate-cleft or parted, with oblong to linear, entire to dentate lobes. Peduncles much longer than the leaves, 1—2-flowered; pedicels longer than the calyx; bracts setaceous; sepals ovate-oblong, scarious-margined, sometimes mucronulate; corolla pink, 2—3 cm long, 3—5-times as long as the calyx. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East. — **M. p.** Damietta; el-'Arîsh; Sath.

Local name: 'ulleyq; Khucytême (Ascherson).

Also known from all the other parts of the Mediterranean basin.

1072. (11.) **Convolvulus arvensis** L. Spec. Plant. I (1753), p. 218. — Boiss. Flor. Or. IV, p. 108. — Rchbch. Ic. XVIII, tab. 136 fig. III. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 702. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Stapf. Addit. Flor. Marmaric., p. 368. — Choisy in DC. Prodrom. IX, p. 406. — Convolvulus cirrhosus R. Br. in Salt Abyss. Plant. App., p. XIV. — Perennial. Stem wide-climbing, glabrous or slightly pubescent. Leaves ovate-hastate, 2—5 cm long, with spreading or deflexed usually acute basal lobes; petiole 1—2,5 cm long. Flowers 1—3, laxly cymose; peduncle long, slender, flexuose; pedicels longer than the calyx, 1—2 cm; bracts short, narrowly linear. Sepals coriaceous, subequal, elliptic-oblong, obtuse, 5 mm long, glabrous or slightly pubescent, especially n othe margin. Corolla broadly funnel-shaped, 18 mm long, pinkish or white. Capsule globose, glabrous, 6 mm in diam. Seeds glabrous. — Flow. December to April.

M. ma. Marmarica: Matruqua; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Damietta abundantly in waste places. — **N. d. N. f. N. v.** Common in waste places, and on way-sides, often in fields as a weed. — **O.** Siwa; Little Oasis; Farâfra; Dakhel; Great Oasis.

Local name: muddsyd (Ascherson); generally: 'ulleyq; tarbûsh-el-ghorâb.

Everywhere in the Mediterranean basin, Europe and Asia.

1073. (12.) **Convolvulus fatmensis** Kunze in Flora (1840), p. 172. — Boiss. Flor. Or. IV, p. 109. — Hallier fil. in Engleis Bot. Jahrb. XVIII, p. 108. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 703. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Stems slender, diffuse 30—60 cm high or sometimes somewhat more, pubescent towards the tip. Leaves distinctly petioled, cordate-ovate, membranous, obtuse 1—3 cm long, thinly pubescent, deeply and irregularly crenate with rounded auricles and a broad basal sinus; petiole often as long as the blade. Flowers 1—2 on short sparsely pubescent axillary peduncles, 18 mm long or shorter; bracts short filiform. Sepals subequal, 6 mm long, coriaceous, obovate, with rounded apex-pedicels shorter than the calyx. Corolla less than 12 mm hairy outside, white with brown stripes. Capsule globose, 6 mm in diam. Seeds glabrous. — Flow. February to April.

N. d. N. f. N. v. N. v. mer. Not common on waste places. — **O.** Little Oasis; Dakhel; Great Oasis.

Local name: ʾulleyq (Schweinfurth).

Also known from Tropical Africa and Arabia.

1074. (13.) **Convolvulus siculus** L. Spec. Plant. I (1753), p. 223. — Boiss. Flor. Or. IV, p. 109. — Rchbch. Ic. XVIII, tab. 137 fig. IV. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 704. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 219. — Sibth. and Smith Flor. graec., tab. 196. — An annual plant 40—60 cm high or sometimes somewhat more, more or less pubescent; stems procumbent or erect. Leaves petioled, cordate-ovate to cuneate-ovate, acute. Peduncles longer than the flower, shorter than the leaf; pedicel very short; bracts lancealate, as long as the calyx or longer; sepals elliptical, tapering; corolla 1 cm long, blue, scarcely twice as long as the calyx. — Flow. March to April.

M. ma. Marmarica: Matruqa; Alexandria-West and -East. — **O.** Dakhel; Great Oasis.

Also known from the other parts of the Mediterranean region.

437. (5.) **Ipomoea** Linn.

Sepals herbaceous or coriaceous, very various in shape, often ovate to lanceolate, or elliptic, obtuse or acute to acuminate or aristate, unequal or subequal, hairy or glabrous, persistent and often much enlarged in fruit. Corolla regular, usually funnel-shaped, rarely salver-shaped shallowly (rarely-deeply) 5-lobed : midpetaline areas well-defined, and often hairy, especially in the young flower. Stamens inserted low down in the corolla-tube; anthers and stigma rarely exserted; filaments filiform, sometimes dilated at the base; anthers ovate-oblong or linear, sometimes spirally twisted when old. Disc annular, entire or sinuate, rarely obsolete. Ovary usually 4-ovuled, 2—4-celled, rarely 6-ovuled, 3-celled; style filiform; stigma capitate, entire, or 2-lobed. Capsule globose or ovoid, usually 4- or 6-valved, rarely splitting irregularly or indehiscent. Seeds glabrous or hairy, 4—6, rarely fewer by abortion; cotyledons broad, plicate. — Herbs or shrubs, usually twining, sometimes prostrate, creeping, rarely erect. Peduncles axillary; flowers 1, few or many in a lax or dense simple or compound cyme; bracts small or large, deciduous or persistent. Flowers large or small, very various in colour, usually white or red-purple.

Species about 400, spread throughout the tropical and subtemperate regions of both hemispheres.

A. *Calycanthemum.* — Annual or perennial herbs of very various habit, rarely erect or suberect, often with long trailing branches or climbing. Leaves generally entire with entire or cordate base. Flowers small or moderate, rarely large; sepals herbaceous, ovate or lanceolate, rarely linear, acute to acuminate, rarely obtuse, sometimes broadened and cordate or auriculate at the base. Seeds often pubescent. Flowers minute. Sepals 5—6 mm long. Corolla scarcely exceeding the calyx . . . . . 1. **I. eriocarpa.**

B. *Leiocalyx.* — Habit various; plants herbaceous or shrubby, with creeping, prostrate or climbing stems, usually glabrous. Leaves various, often ovate-cordate, or oblong to linear, or palmately cut. Flowers generally small to moderate, sometimes large, axillary or in more or less umbellate dichasia. Sepals usually coriaceous with thinner edges, sometimes verrucose or cristate on the back, oblong or ovate, rarely lanceolate, obtuse (sometimes mucronately) to acute, rarely acuminate. Corolla usually bright red or purple, more rarely white. Seeds small, glabrous or shortly hairy.

I. Leaves entire . . . . . 2. **I. stolonifera.**

II. Leaves more or less trilobed . . . . . 3. **I. Batatas.**

III. Leaves palmately divided . . . . . 4. **I. palmata.**

C. *Chorisanthae.* — Annual or perennial herbs with slender climbing hairy stems. Leaves cordate-ovate, sometimes 3-lobed or palmatipartite, hairy, especially on the under surface. Peduncles often long, bearing few, several or many flowers in a dense to lax cyme; bracts generally small. Flowers moderate to large. Sepals herbaceous, lanceolate, acute, rarely exceeding 9 mm in length, hairy and ciliate. Corolla reddish to purple . . . . . 5. **I. hederacea.**

1075. (1.) **Ipomoea eriocarpa** R. Br. Prodrom. (1810), p. 484. — Choisy in DC. Prodrom. IX, p. 369. — Ipomoea hispida Roem. and Schult. System. IV, p. 238. — Ipomoea sessiliflora Roth, Nov. Plant. Spec., p. 116. — Choisy in DC. Prodrom. IX, p. 366. — Ipomoea Rogeri Choisy in DC. Prodrom. IX, p. 381. — Convolvulus hispidus Vahl Symb. Bot. III, p. 29. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Annual. Stems long, slender, prostrate or high twining, pubescent. Leaves varying from cordate-ovate to linear-oblong, with cordate to subhastate base, acute, $2\frac{1}{4}$—10 cm long, 5—20 mm

broad, slightly hairy on both sides chiefly on the veins; petiole 2—5 cm long. Flowers few or many in a dense subsessile cluster; bracts small, lanceolate to subulate, persistent; pedicels sometimes as long as the calyx. Sepals very hairy, 5—6 mm long, ovate, acuminate, with spreading tips. Corolla 6—8 mm long, campanulate; white with a purple eye or sometimes rose or purple; midpetaline areas pubescent. Capsule globose, hairy, 2-celled, 4-seeded, 5 mm in diam. Seeds glabrous, finely punctate. — Flow. March to April.

N. d. In cotton-fields near Shubra.

Trough Tropical Africa, Asia to North Australia.

1076. (2.) **Ipomoea stolonifera** Gmel. Syst. II (1791), p. 345. — Ipomoea carmosa R. Br. Prodrom., p. 485. — Ipomoea acetosaefolia Roem. and Schult. System. IV, p. 246. — Ipomoea humilis G. Don. Gen. System. IV, p. 267. — Choisy in DC. Prodrom. IX, p. 396. — Ipomoea littoralis Boiss. Flor. Or. IV, p. 112. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 705. — Batatas acetosaefolia and Batatas littoralis Choisy in DC. Prodrom. IX, p. 337—338. — Perennial, from a stout tuberous root, glabrous. Stems trailing widely on the sands of the sea shore or running just beneath the surface and sending up short erect leafy branches. Leaves very variable in shape, thick, rather fleshy, usually linear or oblong, 5—8 cm long, entire, apex rounded, mucronulate, sometimes emarginate, base cuneate, sometimes slightly cordate or auricled to hastate; petiole 2—$2^1/_2$ cm long or less. Peduncles 1—3-flowered, from less than 2—5 cm long; bracts minute, subulate; pedicel generally stouter than the peduncle, 2—$2^1/_2$ cm long. Sepals thinly coriaceous, 8—10 mm long, oblong to ovate, obtuse or minutely cuspidate. Corolla funnel-shaped, $2^1/_2$—5 cm long, white with a purple eye. Capsule globose, glabrous, 12 mm in diam. Seeds shaggily tomentose. — Flow. January to March.

M. ma. Abusîr; Alexandria.

Widely spread on sandy sea-shores in the warmer parts of the world.

1077. (3.) **Ipomoea Batatas** Lam. Encyclop. IV (1797), p. 14. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107. — Batatas edulis Choisy in DC. Prodrom. IX, p. 338. — Perennial, with a large white or red, rarely yellow, tuberous root. Stems climbing, glabrous or slightly hairy. Leaves membranous, glabrous, 6—8 cm long, and broad, very variable in shape, 3-lobed to tripartite, central lobe large ovate, subacute, lateral lobes rounded to acute, sometimes again divided, the blade becoming more or less palmately pentapartite, rarely subentire, with coarsely dentate or angled margin; base flat; petiole long. Peduncle long; cymes dense; pedicels short.

Sepals subcoriaceous, oblong, shortly and abruptly acute, glabrous or with a few long soft hairs, 8—9 mm long, two outer smaller than the three inner ones. Corolla reddish, campanulate-funnel-shaped, $2^1/_2$ cm long. Ovary 4-celled. Seeds glabrous. Flow. January to March.

M. ma. Cultivated everywhere in fields near Alexandria, and often subspontaneous.

Local name: batâta.

Widely cultivated in Tropical Africa, as it is in the other tropical and subtropical regions of both hemispheres. Its original native country is not clearly ascertained.

1078. (4). **Ipomoea palmata** Forsk. Flor. aeg. arab. (1775), p. 43. — Boiss. Flor. Or. IV, p. 113. — Choisy in DC. Prodr. IX. 386; Benth. in Hook. Niger Fl. 468. — Schweinf. Beitr. Fl. Aethiop. 95; Baker & Wright in Dyer, Fl. Cap. IV. II. 66. — I. cairica, Sweet, Hort. Brit. ed. I. 287; Hallier f. in Engl. Jahrb. XVIII. 148. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107 no. 706. — I. senegalensis, Lam. Ill. I. 464. — I. tuberculata, Roem. & Schultes, Syst. IV. 208; Choisy, l. c. 386. — I. vesiculosa, P. Beauv. Fl. Owar. II. 73, t. 106; Choisy, l. c. 387. — I. Mendesii, Welw. Apont. Phytogeogr. 584, no. 12. — Batatas senegalensis, G. Don, Gen. Syst. IV. 261. — Convolvulus cairicus, Linn. Syst. ed. X. 922; Bot. Mag. t. 699. — Perennial, glabrous. Stems slender, twining, smooth or tubercled or muricate. Leaves membranous, glabrous, 2—6 cm long and broad, cut nearly or quite to the base into generally five segments, the lowest of which are sometimes unequally bifid to bipartite; segments from narrowly oval to lanceolate, varying from 2 mm to nearly 2,5 cm in breadth, obscurely mucronulate at the obtuse or subacute apex; petiole slender, as long as the blade, sometimes muriculate; base apparently stipulate from the presence of a pair of small similarly palmatipartite axillary leaflets. Peduncles generally shorter than the leaves, bearing lax few-to many-flowered cymes. Bracts minute, ovate; pedicels about 10 mm long. Sepals coriaceous, ovate to orbicular-ovate, obtuse, 5—8 mm long. Corolla funnel-shaped, bright red-purple, $2^1/_2$—5 cm long. Capsule globose, glabrous, 8—12 mm in diam., 2-celled. Seeds 4, dark brown, shortly pubescent, angles bearded with long whitish hairs. — Flow. January to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: sherk-falek (Delile); bint-el-hosn; generally: sitt-el-hosn.

Also known from South Africa, and widely spread in the Tropics of both hemispheres.

1079. (5). **Ipomoea hederacea** Jacq. Collect. I (1786), p. 124. — Jc. tab. 36. — Ipomoea Nil, Roth, Cat. Bot. I. 36. — Hallier f. in Engl. Jahrb. XVIII. 136. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 107. — I. scabra, Forsk. Pl. Aegypt.-Arab. 44. — I. githaginea, Hochst. in herb. un. itin. 1842, no. 784. Convolvulus Nil, Linn. Sp. Pl. ed. 2. 219. — Bot. Mag. t. 188. — Pharbitis hederacea, Choisy in Mém. Soc. Phys. Genèv. VI. 440 (Conv. Or. 58), and in DC. Prodr. IX. 344. — P. Nil, Choisy l. c. 343. — P. hispida, A. Rich. Tent. Fl. Abyss II. 65, not of Choisy. — P. purpurea, Aschers. in Schweinf. Beitr. Fl. Aethiop. 96 excl. syn. — P. githaginea, Hochst. in herb. un. itin. 1844, no. 1446. — Annual. Stems slender, hairy, twining, hairs spreading. Leaves cordate-orbicular or cordate-ovate, acute, usually shallowly 3-lobed, membranous, hairy, $2^1/_2$—10 cm wide; petiole about as long as the blade. Peduncle 1—5-flowered, about as long as the petiole; pedicels short; bracts small, linear. Calyx hairy, 1—3 cm long; sepals lanceolate, with a long narrow point, lower broader portion generally long-hairy, narrower upper part sparsely and short-hairy. Corolla funnel-shaped, usually blue, with purple stripes 5—8 cm long; limb 5 cm in diam. Capsule small, subglobose, 3-celled. Seeds 6, smooth. — Flow. January to April.

M. ma. M. p. N. d. N. f. N. v. Cultivated abundantly and rarely subspontaneous.

Local name: batâta (?).

Widely spread throughout the Tropics.

438. (6.) **Cuscuta** Linn.

Calyx usually campanulate; sepals usually 5, imbricate, ovate, generally more or less united at the base. Corolla campanulate; lobes usually 5, longer or shorter than the tube, imbricate; tube usually appendiculate with 5 scales, placed beneath the lobes. Stamens inserted in the sinuses between the corolla-lobes or below them; filaments filiform or flattened; anthers globose or oblong. Ovary 4-ovuled, perfectly or imperfectly 2-celled; styles 2, free to the base or connate; stigmas capitate or linear. Capsule dry or fleshy, bursting irregularly or dehiscence circumscissile. Seeds glabrous; embryo peripheric, filiform, entire. — Leafless parasites, with twining stems and small usually reddish-white flowers in clusters.

Species about 80. Cosmopolitan.

A. Styles 2. Stigmas elongated. Flowers in globular heads.

I. Styles as long as the stigmas or shorter. Capsule opening by a lid.

a) Styles longer than the ovary . . . . . 1. **C. planiflora.**
b) Styles much shorter than the ovary.
1. Corolla-lobes ovate . . . . . 2. **C. brevistyla.**
2. Corolla-lobes triangular . . . . . 3. **C. Epilinum.**
II. Style a short tubercle or 0. Stigmas as long as the ovary . . . . . 4. **C. arabica.**
B. Style 1. Stigma capitate 2-lobed . . . . . 5. **C. monogyna.**

1080. (1.) **Cuscuta planiflora** Ten. Flor. Nap. III (1824—1829), p. 250 tab. 220 fig. 3. — Boiss. Flor. Or. IV, p. 116. — Rchbch. Ic. XVIII, tab. 142 fig. VII. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 708. — Engelm. in Trans. Acad. Sc. I, p. 464. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 221. — Cuscuta brevistyla A. Braun ex A. Rich. Tentam. Flor. Abyss. II, p. 79. — Stems very slender, reddish. Flowers sessile or subsessile, in dense globose sessile clusters, 5 to 8 mm in diam. Calyx broadly cup-shaped, about 2 mm long; lobes 5, ovate, obtuse to subacute, about as long as the tube. Corolla slightly exceeding the calyx, globose-urceolate; lobes 5, ovate, obtuse, pale pink or whitish, spreading, rarely as long as the tube; scales broad, shortly fimbriate above. Stamens 5, shorter than the lobes. Styles shorter than the linear stigmas; style and stigma together barely 1 mm long. Capsule regularly circumscissile at the base. Seeds 4, brown; testa granulate. — Flow. February to March.

M. ma. Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Brullus; Qatîya. — Frequently parasitic on *Helianthemum cahiricum*. — **N. d.** Cairo, parasitic on *Trifolium alexandrinum*; on *Alhagi*. — **D. l.** Abu-Roash.

Widely distributed throughout the whole Mediterranean basin.

1081. (2.) **Cuscuta brevistyla** A. Br. ex Rich. Tentam. Flor. Abyss. II, p. 79. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Boiss. Flor. Or. IV, p. 117. — An annual herb. Stem branching. Flowers sessile; calyx scarcely shorter than the corolla, parted nearly to the base into ovate, obtuse lobes; corolla-lobes ovate, spreading; scales small, truncate, sometimes bilobed; styles about as long as the somewhat club-shaped stigmas. — Flow. February to March.

M. ma. Mariut; Alexandria-West and -East. — **M. p.** Between el-Grâdy and Sheyk Zoyêd. — **D. a. sept.** Northern and Southern Galala; Wady Sâteri; Wady Om Ruthi.

Also known from Arabia Petraea, Palestine and Syria.

1082. (3.) **Cuscuta Epilinum** Weihe Prodrom. Monast. (1824), p. 75. — Boiss. Flor. Or. IV, p. 118. — Aschers.-Schweinf. Ill. Flor.

d'Eg., p. 108 no. 709. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Cuscuta densiflora Soy. Willem. Rchbch. Ic. XVIII, tab. 142 fig. D. — Epilinella cuscutoides Pfeiff. in Bot. Ztschr. III (1847), p. 673. — An annual herb. Heads dense; calyx appressed to the corolla, as long as its tube, deeply parted into broad, ovate lobes; corolla-tube nearly globular, limb half as long as the tube, lobes triangular, acute, spreading; scales small, appressed to the tube; stigmas twice as long as the style, at length nearly club-shaped. — Flow. February to March.

N. d. Cairo. — **N. v.** Siut; always in flax.

Also known from Arabia Petraea, Palestine and Syria.

1083. (4.) **Cuscuta arabica** Fres. in Mus. Senckenberg. I (1835), p. 165. — Boiss. Flor. Or. IV, p. 120. — Choisy in DC. Prodrom. IX, p. 453. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 710. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — A annual herb. Stem filiform. Flower-clusters small, about 5 mm in diam.; flowers subsessile. Calyx shallowly campanulate, 5-lobed to about the middle, about 2 mm long. Corolla shortly campanulate, slightly exceeding the calyx; lobes short, bluntly ovate. Stamens a little shorter than the corolla-lobes. Scales bluntly-ovate-oblong, fimbriate. Styles obsolete; stigmas short, linear. Capsule ultimately separating at the base. Seeds pale brown, granulate. — Flow. March to April.

M. ma. Almaîda; Bîr-Burdân; Abusîr; Mariut; Alexandria-West and -East; Sidi Gâber; Abukîr. — **N. d.** Alexandria; Damanhûr; Desûq; Fûa; Er-Rahmanîya; Tanta; Shirbîn; Mansûra; Zaqaziq; Cairo. — **N. f.** Medînet-el-Fayûm; Begîg; Kom Fâris; Tamîa; El-Wâdy; El-Hammân; Kafr-Mukfût. — **N. v.** Kafr-el-Ayyât; El-Wasta; Beni-Suef; Feshn; Molatîya; Kene; Karnak; Luksor; Aswân. — **O.** Little Oasis; Farâfra not common; Dakhel, in Trifolium-fields; Great Oasis common. — **D. a. sept.** Serapeum; Bîr-Suez; Suez; Turra; Helwân; Wady Dugla; Great Petrified forest. — **D. a. mer.** Wady Lekhuma.

Local name: hamûl; ingîl.

Also known from Arabia Petraea, Palestine, Syria and Tropical Africa.

1084. (5.) **Cuscuta monogyna** Vahl Symb. Bot. II (1791), p. 32. — Boiss. Flor. Or. IV, p. 121. — Choisy in DC. Prodrom. IX, p. 454. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 711. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — Sibth. and Smith Flor. graec., tab. 257. — Cuscuta orientalis Tournef. Cor., p. 45. — Cuscuta astyla Engelmann Monogr., p. 45. — An annual herb. Stems thicker than in other species, 0,3 cm in diameter. Flowers 4 mm long, 8—16 in a spike-like raceme 2—5 cm long; calyx-lobes ovate, imbricated, obtuse; corolla in flower cylindrical, tube longer than the calyx, with short, erect,

ovate, obtuse, crenulate lobes; anthers cordate-ovate, nearly sessile a little below throat; scales hippocrepidiform, denticulate; style as long as the nearly globular, 2-lobed stigma, much shorter than the globular-ovate ovary; capsule 8 mm long, 5 mm broad, ovate, capped by marcescent corolla. — Flow. March to April.

N. v. Gîzâ near Cairo on *Citrus*.

Also known from Arabia Petraea and Palestine.

92. Polemoniaceae.

Annual or usually perennial herbs or shrubby plants. Leaves alternate or opposite, often crowded; blades entire or pinnately compound. Inflorescence paniculate, corymbose sometimes clustered. Flowers perfect, regular or nearly so. Calyx of 5 partially united sepals. Corolla regular: limb five-lobed: lobes convolute in aestivation. Androecium of 5 often unequal stamens adnate to the corolla-tube. Anthers opening lengthwise and introrsely. Gynoecium of a single carpel. Ovary 3-celled with a thick axis. Styles united. Stigmas 3. Ovules solitary, erect anatropous or several in two series, ascending, amphitropous. Fruit a 3-celled loculicidal capsule; valves usually separating from the central axis to which the seeds are attached. Seeds solitary or several in each cavity, with a spongy or mucilaginous testa. Endosperm fleshy or horny. Embryo straight, axile.

A family widely spread throughout the most countries of the World.

439. Phlox Linn.

Annual or usually perennial, sometimes shrubby herbs, with erect or diffuse and creeping stems. Leaves opposite, or sometimes alternate above; blades entire. Flowers in terminal corymbose or panicled cymes. Calyx pedicelled; tube narrow, 5-ribbed; lobes 5, often tooth-like. Corolla white, blue, purple or red, salverform; tube slender; lobes spreading, obovate to orbicular, or obcordate. Stamens 5, included. Filaments unequally adnate to the corolla-tube. Ovules 1—5 in each cavity. Capsule included in the calyx-tube which it ruptures at maturity. Seeds sometimes narrowly winged, not emitting spiral threads when wetted.

A small genus of 48 species, mostly of Northern America.

1085. **Phlox paniculata** L. Spec. Plant. I (1753), p. 151. — Brand Polemoniaceae in Engler, Das Pflanzenreich IV, fasc. 250 (1907), p. 59. — Benth. in DC. Prodrom. IX, p. 303. — Phlox undulata Lam. Illustr. I, p. 481. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 106. — Phlox acuminata Pursh Flor. Americ. Septent. II,

p. 730. — Bot. Magaz., tab. 1880. — Phlox Sickmannii Lehm. Sem. Hort. Hamburg (1826), p. 17. — Perennial, minutely pubescent or glabrous. Stems 6—12 dm. tall, branched above; leaves opposite, elliptic, elliptic-lanceolate or narrowly oblong-elliptic, 8—20 cm long, acuminate, undulate, narrowed into margined petioles or nearly sessile; panicles corymbose-pyramidal; calyx granular or sparingly pubescent; lobes subulate, shorter than the tube; corolla pink-purple, or white; tube about 2 cm long, 1,5—2 mm thick; limb 15—17 mm broad; lobes obovate or cuneate-obovate; capsules oval, 4—5 mm long. — Flow. March to April.

M. ma. N. d. Often cultivated and sometimes naturalized.

Originally from North America.

93. Hydrophyllaceae.

Flowers regular. Calyx free, of 5 divisions. Corolla with a short or rarely elongated tube, and 5 spreading lobes, imbricate and sometimes contorted in the bud. Stamens 5, inserted at the base of the corolla-tube and alternating with its lobes; anthers 2-celled, the cells opening in longitudinal slits. Ovary superior, entire, either 1-celled with two parietal or free placentas or rarely 2-celled with the placentas on the dissepiment; style terminal, bifid or divided to the base into 2 distinct styles; stigmas obtuse or capitate; ovules numerous or rarely reduced to 2 to each placenta and then laterally attached. Fruit a capsule, opening in 2 valves, the margins alternating with the placentas or rarely opposite the dissepiment. Seeds with a thin usually reticulate testa, and copious fleshy albumen. Embryo straight, usually small and distant from the hilum. — Herbs or rarely undershrubs, often hispid. Leaves alternate or rarely the lower ones opposite, entire lobed or divided. Flowers usually blue or white, in one-sided spikes or racemes, often rolled back when young and sometimes branching into dichotomous cymes, as in Boragineae, or forming small and compact cymes or clusters. Bracts usually present under the pedicels and often leaf-like; bracteoles rarely present.

A small Order, chiefly American.

440. **Hydrolea** Linn.

Calyx 5-partite; aestivation imbricate at the base, open above. Corolla 5-lobed almost to the base, rotate-campanulate. Stamens 5, inserted at the sinuses of the corolla; filaments filiform, usually dilated at the base; anthers sagittate. Ovary 2-(rarely 3-)celled; placentas fleshy, adnate to the dissepiments; ovules many in a cell;

styles 2, distinct from the base, subulate; stigmas simple or capitate. Capsule globose, ellipsoid or ovoid, membranous, usually septicidally 2-valved. Seeds many, minute. Herbs or undershrubs, sometimes spinous, glabrous or softly glandular-pilose. Leaves alternate, entire. Flowers blue, usually in peduncled bracteate cymes, which from a panicle, sometimes in axillary clusters or racemes.

Species about 20, spread widely in the Tropical and Temperate regions of both hemispheres.

1086. **Hydrolea guineensis** Choisy in Ann. Scienc. Nat. sér. 2 Vol. I (1843), p. 180. — DC. Prodrom. X, p. 180. — Hydrolea glabra Schum. and Thonn. Deskr. Guin. Plant., p. 161 not of Smith or other authors. — Hydrolea zeylanica A. W. Benn. in Journ. Linn. Soc. XI, p. 275, partly, not of Vahl. — Main stem apparently decumbent or creeping, with erect or ascending branches 6—28 cm high, not hollow, glabrous. Leaves $2^1/_2$—$6^1/_2$ cm long, 5—10 mm broad, lanceolate, acute or acuminate, acutely tapering at the base into a petiole 2—17 mm long, glabrous. Flowers racemosely arranged in numerous axillary clusters of 3—5 or the lower 4—7-flowered; racemes 6 mm to 2 cm long. Bracts $2^1/_2$—16 mm long, lanceolate or linear-lanceolate, glabrous. Pedicels 1—2 mm long, glabrous. Sepals $5^1/_2$—6 (in fruit $6^1/_2$—8) mm long, 1—$2^1/_3$ mm broad, unequal, lanceolate or ovate-lanceolate, acute, glabrous. Corolla blue, glabrous; lobes nearly 2 mm long, 1—2,5 mm broad, oblong or narrowly elliptic-oblong, rounded at the apex. Staminal filaments $2^1/_4$—$2^1/_3$ mm long, filiform, with a deltoid dilated base; anthers 8 mm long. Hypogynous disk very inconspicuous. Styles 1—2,5 mm long. Capsule about 5 mm long, subglobose or very broadly ovoid. — Flow. February to March.

M. ma. N. d. N. v. Rarely cultivated in modern gardens and sometimes subspontaneous.

Also known from Tropical Africa, origin from Mexico.

94. Borraginaceae.

Flowers regular or nearly so. Calyx free, of 5 rarely 4 or 6 or more divisions or teeth or rarely irregularly split. Corolla with a long or short tube, and 5 rarely 4 or 6 or more lobes, imbricate or induplicate in the bud. Stamens as many as corolla-lobes or very rarely fewer, inserted in the corolla-tube and alternate with its lobes; anthers 2-celled, the cells opening in longitudinal slits or rarely in terminal pores. Ovary superior, entire or 4-lobed rarely 2-lobed, either 4 or 2-celled with 1 ovule in each cell or 2-celled with 2 ovules in each cell (in all cases formed of 2 carpels); style

terminal or inserted between the lobes; ovules laterally attached, ascending or pendulous. Fruit either a drupe with the endocarp entire or separating into 2 carpels or 4 pyrenes, or dry and separating into 4 rarely 2 nuts. Seed with a thin testa; albumen none or scanty; embryo straight; cotyledons flat and rather thick or rarely folded; radicle short. — Herbs, usually rough with coarse hairs, or in the drupaceous genera sometimes trees or shrubs with a softer indumentum or glabrous. Leaves alternate or very rarely opposite, usually undivided, entire or toothed, very rarely deeply lobed. Flowers in one-sided spikes or racemes, rolled back when young and often forked or dichotomous or rarely in irregularly-branched panicles or solitary. Bracts often not immediately subtending the pedicels and sometimes entirely wanting; bracteoles very rarely present.

A considerable Order, the herbaceous genera chiefly spread over the northern hemisphere with a very few tropical or southern species; the frutescent drupaceous genera chiefly tropical in the New as well as the Old World.

A. Tribe I: *Cordieae.* — Ovary single with a terminal style. Fruit a green drupe. Seeds 4, exalbiminous . . . 1. **Cordia.**

B. Tribe II: *Heliotropeae.* — Ovary single, with terminal style and 4; sutures fruit in ours dry, separating into 2 pyrenes or 4 nutlets. Seeds sparingly albuminous . . . . . 2. **Heliotropium.**

C. Tribe III: *Borragineae.* — Ovary consisting of two 2-parted, rarely 2-celled carpels. Style arising from the base, between the carpels. Nutlets four, 1-celled, or two, 2-celled. Seeds exalbuminous. The roots yield a reddye.

I. Subtribe 1: *Cynoglosseae.* — Nutlets 4, inserted by inner face, on a flat, convex, conical or columnar gynobase, their tips projecting little if any above it.

a) Fruiting calyx growing. Nutlets inserted by the whole inner face. Strigose herbs . . . 3. **Trichodesma.**

b) Fruiting calyx unchanged. Nutlets inserted on a pyramidal column.

1. Nutlets with toothed margins . . . . 4. **Paracaryum.**

2. Nutlets with entire margins . . . . . 5. **Omphalodes.**

II. Subtribe: *Eritrichieae.* — Nutlets 4, rarely 2 or 1, inserted by the inner face on an elevated, conical, oblong, columnar gynobase, their tips more or less prominent above it, free.

a) Herbs, with ascending or spreading leaves, and loose racemes . . . . . 6. **Lappula.**

b) Shrubs, with white branches, minute, appressed leaves, and short terminal spikes 7. **Echiochilon.**

III. Subtribe: *Anchuseae.* — Nutlets 4, inserted on a flat or short-conical gynobase by a concave surface usually surrounded by a ring, which is sometimes left on the gynobase when the fruit is shed.

a) Throat of corolla with 5 scales.

1. Corolla cylindrical or funnel-shaped; lobes nearly erect . . . . . 8. **Symphytum.**
2. Coralla rotate; lobes spreading . . . 9. **Borrago.**
3. Corolla funnel-shaped, sometimes bilabiate; lobes spreading . . . . . 10. **Anchusa.**

b) Throat of the corolla naked.

1. Squamules of the corolla half way down its tube . . . . . 11. **Nonnea.**
2. Throat of the corolla with small, transverse wrinkles . . . . . 12. **Alkanna.**

IV. Subtribe: *Lithospermeae.* — Nutlets erect or incurved, inserted on a flat, convex, or slightly conical gynobase by a flat surface at the base of the inner angle.

a) Racemes bracted. Anthers obtuse at the tip.

1. Corolla-lobes spreading.
   α) Style entire . . . . . 13. **Lithospermum.**
   β) Style bifid . . . . . 14. **Arnebia.**
2. Corolla more or less bilabiate, 5-lobed 15. **Echium.**

b) Racemes bracted. Anthers acuminate at the tip, sagittate at the base.

1. Nutlets straight, the basilar areola not stalked . . . . . 16. **Onosma.**
2. Nutlets curved, the basilar areola somewath stalked . . . . . 17. **Podonosma.**

441. (1.) **Cordia** Linn.

Flowers often polygamous. Calyx-tube funnel-shaped or tubular, smooth or sulcate; lobes 2—5, short, sometimes cohering. Corolla-tube cylindrical or funnel-shaped; lobes 4—5, patent or recurved, usually imbricate or subcontorted. Stamens usually 4—5, inserted in the corolla-tube; filaments filiform; anthers ovate-oblong or linear. Ovary 4-celled; style elongated, filiform, twice forked; stigmas 4, linear or capitate; ovule erect, attached at the base or below the

middle. Fruit a drupe surrounded by the persistent accrescent calyx; endocarp usually bony; cells 4 or by abortion fewer, 1-seeded. Seeds ascending, exalbuminous; cotyledons very plicate; radicle short. — Trees or shrubs. Leaves alternate, rarely subopposite, petioled, entire or crenate-dentate. Flowers arranged in all the Egyptian species in panicled cymes with scorpioid branches. Corolla white or yellow, varying greatly in size.

Species about 200, tropical or subtropical, concentrated in America.

A. Leaves alternate.
  I. Panicles loose in flower . . . . . 1. **C. Myxa.**
  II. Panicles not loose in flower . . . . . 2. **C. crenata.**
B. Leaves opposite or subopposite . . . . . 3. **C. Gharaf.**

1087. (1.) **Cordia Myxa** Linn. Spec. Plant. I (1753), p. 190. — Boiss. Flor. Or. IV, p. 124. — DC. Prodrom. IX, p. 479. — Jacq. Fragm., tab. 103 fig. 3. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 712. — Delile Illustr. Flor. d'Eg., p. 191 tab. 19 fig. 1—2. — Cordia Sebestena Forsk. Flor. aeg.-arab. LXIII not of others. — Cordia africana Lam. Illustr. I, p. 420 tab. 96. — Cordia officinalis Lam. Illustr. I, p. 420 tab. 96. — Cordia domestica Roth Nov. Plant. Spec., p. 123. — A handsome tree, with a dense coma, glabrous or the foliage scabrous-pubescent. Leaves on rather long petioles, from ovate to orbicular, very obtuse or shortly acuminate, entire or irregularly sinuate, 3 or 5-nerved at the base, usually 5—8 cm long. Flowers not large, polygamous, in loose pedunculate cymes or panicles. Calyx membranous, about 6 mm long, entire and closed over the corolla in the bud, opening irregularly into short lobes without prominent ribs when the flower expands, hardened, broadly, cup-shaped, and irregularly and broadly toothed or lobed under the fruit. Corolla-tube oblong-cylindrical, slightly contracted at the throat, nearly as long as the calyx, glabrous inside and out; lobes narrow, recurved, as long as the tube. Stamens exserted, but not exceeding the corolla-lobes; anthers oblong-linear. Style short, with 4 long filiform branches stigmatic along the inner side. Drupe ovoid or nearly globular, pale yellow or slightly pink, the pulp very viscid, the putamen very hard, usually 1 or 2-celled, with 1 seed in each cell. — Flow. January to March.

M. ma. M. p. Cultivated in old gardens, often naturalized. — **N. v.** Abundantly near Luksor. — **O.** Great Oasis.

Local name: mukheyt.

Also known from Tropical Africa, Madagascar, Tropical Asia, and Queensland. — In India the wood is considered fairly strong, and is used for boat-building, well-curbs, gunstocks, and canoes; the bark for rope-making,

and the fruit for eating. Medicinally the dried fruit is valued on account of its mucilaginous nature and demulcent properties; it is much used in coughs and chest affections, also in irritation of the urinary passages; in larger quantities it is given in bilious affections as a laxative. — (Dymock, Veg. Mat. Med. of W. Ind.)

1088. (2.) **Cordia crenata** Del. Illustr. Flor. d'Eg. (1813), p. 195 tab. 20 not of Roem. and Schult. — Boiss. Flor. Or. IV, p. 124. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 713. — Sickenberg. Contrib. Flor. d'Eg., p. 259. — DC. Prodrom. IX, p. 479. — Cordia senegalensis var. Pelida Hochst. in Schimp. Ecsicc. 2180 not of DC. — A low tree; branchlets slender, pubescent when quite young. Leaves obovate-cuneate, obtuse, 5—8 cm long, $2^1/_2$ cm wide, firm, scabrid above, pubescent beneath, crenate or entire in the upper half; lateral nerves about 5 on each side; petiole 8—10 mm long, pubescent. Cymes few-flowered. Calyx tubular-campanulate, 8 mm long, not sulcate, slightly pubescent outside, densely silky inside and on the margins; lobes broadly ovate, acuminate, scarious. Corolla-tube cylindrical, $8^1/_2$ mm long; lobes 5, obovate, obtuse, $5^1/_2$ mm long. Filaments much shorther than the corolla-lobes, hairy below. Ovary ovoid, gradually, tapering upwards; style deeply bipartite; ultimate branches linear, $5^1/_2$ mm long. Fruit ovoid, 9 mm long, seated upon the enlarged woody campanulate crenately toothed calyx. — Flow. March to April.

N. d. N. v. In old arabian gardens cultivated and sometimes naturalized.

Local name: mukheyt rumy.

Also known from Tropical Africa. — This is very closely allied to that state of *Cordia Gharaf* Ehrenberg, described by Klotzsch as *Cordia quercifolia*.

1089. (3.) **Cordia Gharaf** Ehrenberg ex Ascherson in Sitzungsber. naturf. Freunde Berlin (1879), p. 46. — and in Sitzber. Bot. Ver. Prov. Brandenbg. XXI (1879), p. 69. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 108 no. 714. — Cordia Rothii Roem. and Schult. Syst. Veg. IV, p. 798. — DC. Prodrom. IX, p. 480. — Wight Icon., tab. 1379. — Cordia reticulata Roth ex Roem. and Schult. Syst. Veg. IV, p. 454 not of Vahl. — Cordia oblongifolia Hochst. ex DC. Prodrom. IX, p. 480. — Cordia subopposite DC. Prodrom. IX, p. 480. — Cordia quercifolia Klotzsch in Peters Reise Mozamb. II, p. 247 tab. 43. — Cornus Gharaf Forsk. Flor. aeg.-arab., p. XCV. — Cornus sanguinea Forsk. Flor. aeg.-arab., p. 33 not of Linn. — A shrub or tree up to about 3 m high; branches often bearing lenticels. Leaves subopposite, oblanceolate or oblong, obtuse, very variable in size, averaging 6 by $2^1/_4$ cm, sometimes rather unequal at the base, scabrid above,

pubescent beneath; petiole 6—10 mm long. Cymes terminal; branches and outside of the calyx more or less hairy; pedicels 2—5 mm long. Calyx oblong-campanulate, 5 mm long, membranous and obscurely lobed at the apex. Corolla white; tube cylindric, a little longer than the calyx; lobes oblong, obtuse, 2 $^1/_2$ by 1 mm. Stamens inserted in the corolla-throat, glabrous. Style-arms narrowly clavate. Fruit ovoid, apiculate by the persistent style-base, seated upon the accrescent saucer-shaped calyx, reddish. — Flow. January to March.

O. Great Oasis: Kharge (Schweinfurth and Ascherson).

Local name: mukheyt; gimbil.

Also extends from Tropical Africa through Arabia into India.

442. (2.) **Heliotropium** Linn.

Calyx deeply divided into 5 segments. Corolla with a cylindrical tube; lobes 5, spreading, plicate and imbricate in the bud. Stamens inserted in the tube; anthers often mucronate or acuminate and sometimes cohering by their tips, included or the tips slightly protruding. Ovary entire, 4-celled, with 1 laterally attached or pendulous ovule in each cell; style terminal, short or long, the stigma or stigmatic summit broadly umbrella-shaped or with a fleshy ring surrounding the base of a more or less distinct central cone or point. Fruit more or less 2 or 4-lobed or furrowed, separating into 4 1-seeded nuts, or in species not Egyptian into 2 hard 2-seeded carpels. Seeds with a scanty or rarely with a rather thick albumen. — Herbs undershrubs or rarely shrubs, with appressed and strigose or with rigid and spreading hairs, very rarely glabrous. Flowers usually small, sessile or pedicellate in one-sided simple or once or twice-forked spikes, with or without bracts, which when present are often not immediately under the pedicels.

The genus is widely dispersed over the tropical and subtropical regions of the globe, a few species extending beyond the tropics both in the northern and the southern hemispheres.

A. Corolla-lobes distinctly caudate . . . . . 1. **H. zeylanicum.**

B. Corolla-lobes not caudate.

I. Annuals.

a) Calyx deciduous . . . . . 2. **H. supinum.**

b) Calyx persistent.

1. Stigma tapering from a conical base.

α) Leaves obtuse at the base . . . . 3. **H. pallens.**

β) Leaves tapering to the base.

† Leaves obovate . . . . . 4. **H. ovalifolium.**
†† Leaves oblong . . . . . 5. **H. europaeum.**
2. Stigma cup-shaped (depressed conical) 6. **H. villosum.**
II. Perennials.
a) Corolla-lobes triangular-linear, with involute margin, connivent in bud . . . . 7. **H. luteum.**
b) Corolla lobes ovate or oblong, imbricated in bud; tube glabrous inside, silky or hirsute outside.
1. Stigma mushroom-shaped . . . . . 8. **H. arbainense.**
2. Stigma with a conical crest.
α) Stems procumbent . . . . . 9. **H. undulatum.**
β) Stems erect . . . . . 10. **H. persicum.**

1090. (1.) **Heliotropium zeylanicum** Lam. Encyclop. III (1789), p. 94. — Wight, Icon., tab. 892. — Helianthemum curassavicum var. zeylanicum Burm. Flor. Ind., p. 41 tab. 16 fig. 2. — Heliotropium subulatum Hochst. ex Vatke in Linnaea XLIII, p. 316. — Heliotropium gracile R. Br. in Salt Abyss. Plant. App., p. LXIII. — Tournefortia zeylanica Wight Icon., tab. 170 fig. B. — Tournefortia subulata Hochst. ex DC. Prodrom. IX, p. 528. — Perennial. Stems slender, erect, woody, much branched, finely pubescent and with long white bristles. Leaves linear or linear-lanceolate, 2—6 cm long, narrowed to the base, with bulbous-based hairs especially on the upper side, pubescent beneath, sessile or shortly petioled. Spikes lax, ebracteate, finally 9—20 cm long. Calyx 2 mm long, hairy outside; lobes ovate. Corolla-tube 2 lin. long, hairy outside; lobes 1 lin. long, caudate-acuminate. Anthers inserted in the upper part of the corolla-tube, lanceolate; connective produced above, bifid. Style 2 mm long, glabrous; stigma conical, slightly shorter than the style. Fruit depressed globose, not longer than the calyx, nutlets 4, often cohering in pairs, rugose. — Flow. January to April.

N. d. Naturalized everywhere in the gardens of Cairo.

Local name: dafâra.

Occurs also everywhere in the Mediterranean region and in the drier parts of the Orient and India.

1091. (2.) **Heliotropium supinum** L. Spec. Plant. I (1753), p. 130. — Boiss. Flor. Or. IV, p. 127. — DC. Prodrom. IX, p. 533. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 715. — Sibth. and Smith Flor. graec., tab. 157. — Heliotropium ambiguum DC. Prodrom. IX, p. 533. — Lithospermum heliotropioides Forsk. Flor. aeg.-arab., p. 39. — Piptoclemia supina G. Don Gen. Syst. IV, p. 364. — Annual, hirsute, much branched. Stem decumbent at the base. Leaves

opposite or alternate, oval or oblong, obtuse, cuneate at the base, more or less crenate, densely hairy on both surfaces, up to 28 by 12 mm, shortly petioled. Spikes simple or once forked, dense, ebracteate. Calyx $2^1/_2$ mm long, hairy outside; lobes $^1/_5$ as long as the tube, obtuse. Corolla-tube as long as the calyx; lobes exserted, very short, rounded. Stamens inserted just below the middle of the corolla-tube. Ovary glabrous; style as long as the ovary. Mature nutlets 1—2 to each flower, 5 mm long, enclosed in the persistent calyx, plano-convex, dark brown, with a lighter brown border, obscurely tubercled. — Flow. March to April.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Damietta; Rosetta. — **N. d. N. f. N. v.** A common plant in deep sandy places, rare in fields as a weed. — **O.** Great Oasis.

Local name: ghobeyrâ (Roth).

Throughout North-Tropical and South-Africa, South and South-East Europe, the Canary Island, Palestine to India.

1092. (3.) **Heliotropium pallens** Delile Cent. Plant. Afric. Caill. (1826), p. 69 tab. 3 fig. 4. — Boiss. Flor. Or. IV, p. 132. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 718. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — DC. Prodrom. IX, p. 534. — Heliotropium aegyptiacum Lehm. in Ind. Sem. Hort. Hamburg. (1821), p. 8. — An erect, much branched annual herb. Stems softly tomentose. Leaves ovate, acute, rounded or shortly cuneate at the base, up to 5 cm long and 3 cm broad, densely pubescent on both surfaces, hairs on the underside of the nerves longer than elsewhere; petiole up to 18 mm long, pilose. Cymes spicate, sometimes forked, arranged in a terminal, sometimes leafy panicle; flowers crowded. Calyx $2^1/_2$ mm long, densely hirsute, divided almost to the base; lobes 5, linear. Corolla white, 6 mm long, 5 mm in diam.; tube contracted just above the base, pubescent outside; lobes rounded, obtuse, sometimes slightly undulated. Stamens inserted about halfway up the corolla-tube; anthers subsessile, lanceolate, 2,5 mm long. Ovary ovoid or conical; style abouts 1 mm long, retrorsely pilose; stigma conical from a flat base, nearly as long as the style, shortly bifid. Nutlets finely reticulate. — Flow. January to April.

N. v. mer. Esne. — **D. a. mer.** Near Shuwvanna (Floyer).

Also known from Tropical Africa and Arabia Petraea, Palestine and Syria.

1093. (4.) **Heliotropium ovalifolium** Forsk. Flor. aeg.-arab. (1775), p. 38. — Heliotropium Brocchianum Vis. Plant. Aegypt. and Nub., p. 8 tab. 2 fig. 1. — Heliotropium Kunzei Lehm. Icon. and Descript. Stirp., p. 19 tab. 29. — Boiss. Flor. Or. IV, p. 130. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 716. — Sickenberg.

Contrib. Flor. d'Eg., p. 260. — Heliotropium cinereum R. Br. in Salt, Abyss. Plant. App., p. 63. — Heliotropicum niloticum DC. in DC. Prodrom. IX, p. 541. — Herbaceous from a woody base. Stem much-branched, diffuse, densely clothed with soft whitish spreading hairs. Leaves obovate or elliptic, obtuse, densely hairy on both surfaces, 1—3¼ cm long, 6—12 mm broad; petiole 5—18 mm long. Cymes spicate, numerous, rather, dense, ebracteate, finally 3—6 cm long. Calyx 1 mm long, white hairy outside; on lobe lanceolate, much broader than the linear others. Corolla 2 mm long; lobes ⅕ as long as the tube, orbicular. Stamens inserted just above the corolla-base; anthers small, lanceolate. Ovary globose; stigma subsessile, conical. Fruit depressed globose, scarcely 2,5 mm in diam.; nutlets 4, hispid. — Flow. February to March.

N. d. Damanhûr; Tanta; Shirbîn; Bendêla; Mansûra; Zaqazig; Benha-el-ʿAsal; Qalyûb; Cairo. — **N. f. v.** Helwân, in deep sandy places; Beni-Suêf; Beni-Hassan; Siut; Ekhmîm; Gebel Silsile; Luksor; Aswân.

Also known from the other parts of the Sahara-region, South-Europe, the Canary Islands to India.

1094. (5.) **Heliotropium europaeum** L. Spec. Plant. I (1753), p. 130. — DC. Prodrom. IX, p. 534. — Boiss. Flor. Or. IV, p. 130. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 717. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Aschers. Flor. Rhinocol., p. 801 no. 178. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Annual. Stems erect, much branched, clothed with short whitish hairs. Leaves thin, flat, oblong or ovate, obtuse, petioled, densely shortly hairy on both sides. Spikes ebracteate, at first short, dense finally laxer and about 5 cm long. Calyx 2 mm long, very hairy; tube very short; lobes lanceolate. Corolla-tube hairy, not longer than the calyx; lobes small, orbicular. Style short, glabrous; stigma with a produced conical apex. Nuts rugose, pubescent. — Flow. February to March.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Abukîr. — **M. p.** El-ʿArîsh. — **N. d. N. f.** Common in deep sandy places. — **O.** Little Oasis; Dakhel; Great Oasis.

Local name: sekrân (Forsk., Del.); ʾafeyn (Ascherson, Schweinfurth).

Mediterranean basin, South and Middle Europe, Armenia Mesopotamia and Persia.

var. **tenuiflorum** Boiss. in Flor. Or. IV (1879), p. 130. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 717. — More canescent, corolla-lobes less erect, stigma more pubescent. — Flow. January to April.

M. ma. M. p. N. d. N. f. O. Everywhere between the type.

Local name: sekrân; ʿafeyn.

Also known from South Europe, Arabia Petraea, Palestine, Syria, Mesopotamia and Persia.

1095. (6.) **Heliotropium villosum** Willd. Spec. Plant. I (1831), p. 741. — Boiss. Flor. Or. IV, p. 133. — Ic. Desf. Cor., tab. 16. — An annual plant, 30—40 cm high, or sometimes somewhat more, tomentose with dense, short, appressed wool, intermixed with longer, spreading hairs. Leaves petioled, ovate, obtuse; corolla glabrous or hirsute within, ribs ending in a tooth below the throat; anthers adnate below the middle of the tube; stigma nearly sessile, much broader than long. — Flow. March to April.

M. ma. Alexandria; Sidi-Gâber; Ramle, in sandy places.

Also known from Syria.

1096. (7.) **Heliotropium luteum** Poir. in Lam. Encyclop. Supplem. III (1789), p. 22. — Boiss. Flor. Or. IV, p. 141. — Aschers. Flor. Rhinocol., p. 801 no. 179. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 719. — Heliotropium lineatum Del. Illustr. Flor. d'Eg., p. 37 tab. 17 not of Vahl. — Heliotropium eriocarpum Lehm. Asp., p. 55. — Lithospernum digynum Forsk. Flor. aeg.-arab., p. 40. — Heliotropium callosum Spreng, Nov. Prov., p. 21. — A perennial herb, 20—40 cm high, sometimes somewhat more, much branched, retrorsely tomentellous, canescent. Leaves 1—15 cm long, oblong to ovate, usually wavy-margined, depressed-lineate at the upper surface. Racemes 1—4 cm long, dense; corolla-tube silky without, glabrous within, one and a half as long as the calyx, lobes yellowish, inflexed, much shorter than the tube; anthers retuse, inserted on throat; stigma long-conical, half as long as the style, hirsute at the apex; nutlets large, densely silky or glabrescent. — Flow. December to April.

M. p. Rosetta; Damietta; el-ʿArîsh. — **D. l. D. i. D. a. sept.** Connon in seep sandy places and on calcarious ground.

Local name: roghl; netesh (Forsk; Delile); forreysh (Delile); halâme (Ascherson); rehâma (Schweinfurth); kirry; karû (Ascherson).

Also known from Arabia Petraea, Palestine and Syria.

1097. (8.) **Heliotropium arbaïnense** Fresen. in Mus. Senckenberg. I (1834), p. 168. — DC. Prodrom. IX, p. 537. — Boiss. Flor. Or. IV, p. 146. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 720. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Perennial. Stems short, ascending, much-branched, densely clothed with short soft whitish hairs. Leaves petioled, ovate or oblong, small, densely hairy on both sides, rounded or narrowed to the base. Spikes dense,

ebracteate, finally 5—8 cm long. Calyx very glandular, hairy, 5 mm long; tube short; lobes ovate. Corolla-tube hairy, twice as long as the calyx; lobes small, ovate. Stamens inserted just below the middle of the corolla-tube; anthers lanceolate, acute. Stigma mushroom-shaped, glabrous, nearly sessile. Nuts 4, shorter than the calyx, rugose, glabrous. — Flow. March to April.

D. a. sept. D. a. mer. Common in the Wadies, mostly in shady places.

Local name: rahâb (Schweinfurth); dafâra (Schweinfurth).

Also known from Tropical Africa, Arabia and Afghanistan.

1098. (9.) **Heliotropium undulatum** Vahl Symb. I (1790), p. 13. — Boiss. Flor. Or. IV, p. 147. — Desf. Flor. Atlant. I, p. 151 tab. 41. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 721. — Aschers. Flor. Rhinocol., p. 801 no. 180. — DC. Prodrom. IX, p. 536. — Heliotropium crispum Desf. Flor. Atl. I, p. 151. — Lithospermum hispidum Forsk. Flor. Flor. aeg.-arab., p. 38. — Perennial, much-branched. Stem slender, suberect, densely clothed with white bulbous-based bristles. Leaves scabrid on both surfaces, undulate, the upper one lanceolate, sessile, the lower one oblong, tapering into a short petiole, up to $5\frac{1}{2}$ cm long and 17 mm broad. Spikes many, short, dense, ebracteate. Calyx 2 mm long, hairy outside; lobes 5, oblong, truncate, as long as the tube. Corolla $2\frac{3}{4}$ mm long; tube slightly inflated near the middle; lobes short, rounded, much undulated. Stamens inserted about half-way up the corolla-tube; anthers lanceolate, acute. Style short, thick, glabrous; stigma conical. Fruit globose, almost 2-winged, pilose at first, finally glabrous; nutlets 4, rugose. — Flow. December to April.

M. p. El-ʿArîsh. — **D. l. D. i. D. a. sept. D. a. mer.** A characteristic plants of the sandy deserts and the Wadies.

Local name: medêb (Ascherson).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea and Palestine.

1099. (10.) **Heliotropium persicum** Lam. Dict. III (1789), p. 94. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 722. — Heliotropium eriocarpum Del. in Lehm. Asp., p. 55. — Burm. Ind. Flor., p. 41 tab. 29. — A perennial herb, 20—40 cm high or more, rough with grey bristles; stems erect. Leaves nearly sessile, lanceolate to linear, acutish, wavy-margined. Spikes rather loose, 1-ranked; corolla-tube somewhat longer than the calyx; lobes somewhat longer than the tube; stigma short-conical, somewhat longer than the style; nutlets hirtulous, separable. — Flow. February to March.

N. d. D. l. D. a. sept. D. a. mer. Often a common plant on waste places, on way sides and in the desert.

Local name: halâme.

Also known from Arabia to India and Persia.

443. (3.) **Trichodesma** R. Br.

Calyx deeply 5-lobed, accrescent; lobes finally rounded or cordate at the base. Corolla-tube short; throat naked; lobes 5, broad or narrow; sinuses often incurved. Stamens 5, inserted at the throat of the corolla-tube; filaments very short, flattened; anthers linear, connivent with the connective more or less produced above the cells and often spirally twisted. Ovary 4-lobed, ovoid; style long, subulate; stigma small; ovules nearly horizontal. Nuts 4, ovoid, triquetrous on the inner face, by the lower part of which they are attached to the broad receptacle, often margined, smooth or tubercled on the back. Seeds subglobose or obovoid, horizontal or pendulous; embryo straight or rather curved; cotyledons planoconvex; radicle short. — Erect herbs, often bristly and tubercled. Leaves alternate or subopposite. Flowers in terminal cymes, blue or white.

Species about 15, also Tropical African, Asiatic, and Australian.

A. Leaves cuneate at the base . . . . . 1. **T. africanum.**
B. Leaves truncate at the base . . . . . 2. **T. Ehrenbergii.**

1100. (1.) **Trichodesma africanum** (L.) R. Br. Prodrom. (1810), p. 496. — Boiss. Flor. Or. IV, p. 280. — DC. Prodrom. X, p. 173. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 749. — Sickenberg. Contrib. Flor. d'Eg., p. 261. — Lehm. Plant. Asper., p. 195. — Borrago africana Linn. Spec. Plant. II, p. 197. — Borrago verrucosa Forsk. Flor. aeg.-arab., p. 41. — Pollichia africana Medic. Bot. Beobacht., p. 248. — Borraginoides aculeata Moench Method., p. 516. — Boraginella africana O. Ktze. Rev. Gen. Plant. II, p. 435. — An annual. Stems erect, branched, up to 1 m high, furnished with scattered rigid white bulbous-based hairs. Leaves opposite or alternate, ovate or ovate-oblong, acute, up to 10 by $5^1/_2$ cm, with scattered white bulbous-based hairs on both surfaces, the uppermost sessile, the rest petioled. Panicle many-flowered, terminal; pedicels up to 10 mm long, covered (like the outside of the calyx) with stiff white hairs 2 mm long. Calyx-lobes lanceolate, 6—9 mm long at flowering time. Corolla scarcely exserted from the calyx, blue; throat yellow with 5 purple spots; lobes rounded, produced into an apiculus 2 mm long. Anthers lanceolate; awn nearly as long as the cells, twisted,

hairy outside in the lower part. Style filiform, glabrous. Nutlets 4, ovoid, scabrid, rugulose on the ventral side, margin raised, white and spiny. — Flow. March to April.

O. Great Oasis (Ascherson, Schweinfurth). — **D. l. D. a. sept. D. a. mer.** Extremely common in the Wadies and in deep sandy places. Plant spread flatly over the ground; flowers bright blue at first, but eventually bleached a dirty white by the sun.

Local name: lusseyq; horreyq (Forsk.); hamîm (Klunzinger); khodar (Schweinfurth); shôk-ed-dab' (Schweinfurth).

Also known from the other parts of North, Tropical and South-Africa, Cape Verde Islands, and through the Orient to Scind.

1101. (2.) **Trichodesma Ehrenbergii** Schweinf. Zeitschrift. Ges. für Erdkunde IV (1869), p. 337. — Boiss. Flor. Or. IV, p. 281. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 750. — Borrago arabica Ehrenberg Mss. — An annual plant, 60—80 cm high, or sometimes somewhat more, furnished with scattered rigid white bulbous-based hairs. Leaves opposite or alternate, truncate at the base, pubescent between the bristles, up to 10 cm long and 4—5 cm broad, the uppermost sessile, the rest petioled. Panicle many-flowered, terminal; pedicels 8—9 mm long, covered like the outside of the calyx with stiff white hairs 1,5—2 mm long. Calyx-lobes lanceolate, 3—5 mm long at flowering time. Corolla scarcely exserted from the calyx, blue; lobes rounded, produced into an apiculus circa 1,5 mm long. Anthers lanceolate or lanceolate-linear; awn nearly as long as the cells, twisted, hairy outside in the lower part. Style filiform, glabrous. Nutlets 4, ovoid, scabrid, rugulose on the ventral side, margin raised, white and spiny. — Flow. March to April.

D. a. mer. Between Qoseyr and Rass Benas; Mirsa Zebâra; Wady Gadîre; Wady Etît (Schweinfurth).

Also known from Arabia.

444. (4.) **Paracaryum** Boiss.

Calyx 5-parted. Corolla funnel-shaped, with ascending lobes. Stamens included; anthers elliptical, longer than the filaments and capitate stigma. Nutlets with glabrous or tubercled disk, and inflexed or flattened, toothed margins. — Herbs with aspect of Cynoglossum.

A small genus of only a few species in the Orient.

A. Annual herbs . . . . . 1. P. Boissieri.
B. Shruby plants . . . . . 2. P. rugulosum.

1102. (1.) **Paracaryum Boissieri** Schweinf. in Aschers.-Schweinf. Illustr. Flor. d'Eg., Supplem. (1889) p. 768. — Paracaryum micranthum Boiss. Diagn. Plant. Orient., Ser. I fasc. XI p. 129 pro parte. — Flor. Or. IV, p. 255. — Omphalodes micrantha DC. Prodrom. X, p. 159 partly. — Cynoglossum intermedium Fres. in Mus. Senckenberg II, p. 169. — An annual plant, 5—10 cm high or more, velvety-asperulous, greyish; stems tender, erect or ascending, few-branched. Basilar leaves oblong, obtuse, the others oblong-linear. Fruiting racemes loose, one-sided; fruiting pedicels recurved as long as the calyx or shorter; corolla blue, minute, limb as long as the tube; nutlets 3 mm broad, cup-shaped with echinulate or unarmed disk, and more or less introflexed denticulate margin. — Flow. March to April.

D. a. sept. Northern Galala, rare.

Local name: sileysele (Schweinfurth).

Also known from Sinai.

1103. (2.) **Paracaryum rugulosum** DC. Prodrom. X (1845), p. 161. — Boiss. Flor. Or. IV, p. 256. — Diagnos. Plant. Or., Ser. I fasc. XI p. 131. — Omphalodes persica Boiss. Diagnos. Plant. Or., Ser. I fasc. 7 p. 30. — Paracaryum rubriflorum Stocks in Hook. Journ. of Botany IV (1852), p. 175. — Omphalodes myosotoides Fresen. in Mus. Senckenberg II, p. 170 not of Labill. — A low shrub, 20—30 cm high or sometimes somewhat more, canescent, often with retrorse hairs; root vertical; stems tufted. Lower leaves oblanceolate, long-tapering at the base, upper ones lanceolate to linear. Inflorescence a stiff panicle; corolla violet to purple, limb shorter than the tube; fruiting racemes loose, short; fruiting pedicels as long as the calyx or longer; nutlets hamper-shaped, with echinulate or unarmed disk, and rugose, denticulate, introflexed margin. — Flow. March.

D. i. Wady-el-Hagg.

Also known from Arabia to Persia.

445. (5.) **Omphalodes** Moench.

Weak, decumbent herbs, strigose or subglabrous. Basilar leaves long petioled, lanceolate or ovate; cauline ones few, alternate. Pedicels in loose racemes, slender, lower subaxillary solitary from leaf-like bracts. Flowers white or blue. Sepals 5, spreading, little enlarged in fruit. Corolla rotate, throat almost closed by obtuse scales; lobes 5, round, spreading, imbricate in the bud. Stamens 5, included; anthers small, obtuse. Ovary deeply 4-lobed; style filiform, from the base of the lobes, stigma small or capitate. Nutlets 4, depressed, forming a pyramid, attached to the in small carpophore by their inner faces,

their margins broad thin, entire or serrate, reflexed over the back of the nuts so as to form on each a small nearly closed cell opening outwards by small hole; nuts smooth on the back.

A small genus of only 10—15 species, from the Mediterranean basin to Central Asia and Japan.

1104. **Omphalodes linifolia** (L.) Moench Method. (1794), p. 262. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 748. — Weak, decumbent herbs, strigose or subglabrous, 30—40 cm high or sometimes somewhat more. Basilar leaves long petioled linear-lanceolate, the cauline-ones linear-filiform, alternate. Pedicels in loose racemes, slender, recurved in fruit. Flowers white; sepals 5, spreading 2 to 3 mm long, spathulate, little enlarged in fruit. Corolla rotate, throat almost closed by obtuse scales; lobes 5, included; anthers small, obtuse. Ovary ovate, deeply 4-lobed; style depressed, from the base of the lobes, stigma small or subcapitate. Fruit 2 mm long and broad, exactly pyramidal; nutlets somewhat saccate at the base, appearing inflated by the reflexed loose membranous margin.

M. ma. Alexandria, often cultivated in gardens and subspontaneous.

Also known from South Europe.

446. (6.) **Lappula** Linn.

Calyx 5-parted. Corolla salver-shaped, throat closed by minute scales. Stamens included, anthers longer than the filament. Nutlets sometimes more or less adnate to each other, erect, 3-angled or flattened; disk tubercled or smooth, margined with 1—3 rows of glochidiate prickles free or connate at base. — Herbs with minute white or bluish flowers, and pyramidal fruit usually appressed-strigulose (ours not more than 2—3 mm long).

A small genus widely distributed in the Orient.

A. Nutlets keeled, with pitted muricate surface, and indistinct margin . . . . . 1. **L. spinocarpos.**
B. Nutlets with one row of glochidiate prickles at the margin . . . . . 2. **L. sinaica.**

1105. (1.) **Lappula spinocarpos** (Forsk.) Ascherson in Sitzungsber. Bot. Verein Prov. Brandenbg. XVI (1874), p. 88. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 745. — Aschers. Flor. Rhinocol., p. 801 no. 187. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 600 no. 229. — Echinospermum spinocarpos Boiss. Flor. Or. IV, p. 249. — Anchusa spinocarpos Forsk. Flor. aeg.-arab., p. 41. — Myosotis spinocarpos Vahl Symb. II, p. 32. — Echinospermum Vahlianum Lehm. Asper.,

p. 103. — An annual herb, 10—15 cm high, rarely somewhat more, canescent or virescent, more or less branched from the base. Leaves linear-spathulate, 1—1,5 cm long. Racemes loose; bracts linear, longer than the fruit; pedicels very short; fruiting calyx twice as long the as the fruit; nutlets keeled. — Flow. March.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Alexandria-West and -East; Mandara; Abukîr, common. — **M. p.** Rosetta, in deep sandy places. — **D. l.** Es-Sabrîgât; Kafr Dâwud; Beni-Selâma; Kafr Hakîm; Abu-Roash; Pyramids of Gîza. — **D. i.** Gebel-Ekhfên; Ismailia; Ramses-Station. — **D. a. sept.** Not rare in the Wadies on calcarious ground.

Also known from Arabia Petraea, Palestine, Syria, Caucasia to Persia and Afghanistan.

1106. (2.) **Lappula sinaica** (DC.) Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 111 no. 746. — Echinospermum sinaicum DC. Prodrom. X, p. 141. — Boiss. Flor. Or. IV, p. 251. — Echinospermum Kotschyi Boiss. Diagnos. Plant. Orient., Ser. I fasc. VII p. 29. — A low shrub, 1—2 m high, hispidulous; stems slender, flexuous, simple or sparingly branched. Lower leaves oblong, tapering to a petiole, the upper oblong, sessile. Racemes few-flowered, at length loose; pedicels as long as or longer than the fruiting calyx, erect or recurved; calyx-lobes linear, reflexed in fruit; corolla minute, blue; nutlets minutely tubercled. — Flow. March to April.

D. a. sept. Wady Tîh, very rare; Southern Wady Azhar (Schweinf.).

Also known from Arabia Petraea, Palestine, Syria, Mesopotamia to Persia.

447. (7.) **Echiochilon** Desf.

Calyx 5-partite; segments lanceolate, 1 very small or obsolete. Corolla-tube subcylindrical, curved; throat not closed by scales; limb bilabiate, irregular; upper lip erect, obscurely 2-lobed; lower ones more spreading, 3-lobed. Stamens 5, included in the corolla-tube; filaments very short; anthers oblong. Ovary with 4 lobes attached to the conic gynobase; style filiform; stigma 2-lobed. Nuts 4, ovoid. Seed straight; cotyledons entire. — Hispid perennials, with many alternate stem-leaves. Flowers small, blue, arranged in leafy scorpioid spikes.

Species 2, the other from Aden.

1107. **Echiochilon fruticosum** Desf. Flor. Atlant. I (1798), p. 167 tab. 47. — Boiss. Flor. Or. IV, p. 211. — DC. Prodrom. X, p. 27. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 736. — Aschers.

Flor. Sirb., p. 812 no. 26. — Aschers. Flor. Rhinocol., p. 801 no. 184. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 660 no. 226. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — A dwarf much-branched perennial, with stems and leaves densely clothed with white bristly hairs. Leaves alternate, lanceolate, 6—12 mm long. Flowers sessile in the axils of the upper leaves, crowded towards the tip of the branchlets. Calyx-segments $2^1/_2$ mm long. Corolla-tube as long as the calyx; limb bright blue, 5 mm diam. — Flow. March to May.

M. a. Marmarica: Matruqa; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Damietta; Rosetta; Gels-Mohammediya; Tawîl-es-sakham; el-ʿArîsh. — **D. l. D. i. D. a. sept.** Often abundantly in the Wadies on calcarious ground or in deep sandy places.

Local name: okrush; shiqra (Ascherson).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Cyrenaica, Western Marmarica, Nubia, Arabia Petraea and Syria.

448. (8.) **Symphytum** Linn.

Rough, hairy perennials, with yellow or purple drooping flowers, in short, terminal, forked cymes, and no bracts under the pedicels. Calyx deeply 5-cleft. Corolla tubular, but enlarged above the middle, where it is closed inside by 5 lanceolate scales, and terminates in 5 very small spreading teeth or lobes. Stamens shorter than the corolla. Nuts ovoid, smooth, attached by their base.

The genus contains but few species, nearly resembling each other, and extends over Europe and northern Asia.

1108. **Symphytum orientale** L. Spec. Plant. I (1753), p. 195. — Boiss. Flor. Or. IV, p. 171. — Icon. Tournef. Voy. I, p. 524. — Jcq. Fil. Ecl. tab. 82. — A perennial plant, 20—50 cm high, or sometimes somewhat more, soft-hirsute with wavy hairs; stems erect. Leaves oblong-cordate, the lower ones petioled, the upper ones sessile, all rounded or cuneate at the base. Calyx 8 mm long in fruit, with lanceolate lobes; corolla twice as long as the flowering calyx, scales a little longer than the anthers; nutlets minute, smooth, oblique, constricted above the base. — Flow. February.

M. p. Rosetta, rare in sandy places, recently introduced (Muschler).

Also known from Greece, Arabia Petraea and Syria.

449. (9.) **Borrago** Linn.

Rough, hairy annuals or biennials, with blue flowers in loose forked cymes. Calyx deeply 5-cleft. Corolla rotate; the tube exceedingly short; the mouth closed by short scales. Stamens 5; the filaments very short and forked; the anthers forming an erect cone

in the centre of the flower. Nuts attached by their excavated base, and free from the style.

A genus of few species, chiefly from north-eastern Europe and western Asia.

1109. **Borrago officinalis** L. Spec. Plant. I (1753), p. 197. — Boiss. Flor. Or. IV, p. 150. — Rchbch. Ic. XVIII tab. 101 fig. III. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 723. — Stem erect, with spreading branches, 30 cm high, or rather more. Lower leaves obovate or oblong, narrowed at the base into long stalks; the upper ones more shortly stalked, and narrower. Flowers on long pedicels, drooping, of a clear blue or sometimes white; the dark anthers very prominent in the centre. — Flow. December to March.

M. ma. Sidi-Gâber; Ramle. — **N. d. N. v.** Sometimes naturalized in the old gardens of Cairo.

Local name: lisân-eth-thôr.

Indigenous to the East Mediterranean region, cultivated and naturalized in Central and Western Europe.

450. (10.) **Anchusa** Linn.

Calyx deeply 5-cleft, but little accrescent. Corolla hypocrateriform; tube straight, cylindrical; throat closed with scales; lobes short, patent, obtuse. Stamens 5, inserted above the middle of the corolla-tube, included; filaments very short; anthers small, oblong, obtuse. Lobes of the ovary 4, attached to the narrow gynobase; style filiform; stigma entire or 2-lobed; ovules erect, inserted at the inner angle. Nuts 4, oblong erect. Seeds straight; cotyledons flat, ovate. — Annual or perennial herbs, often very hispid. Leaves alternate. Racemes scorpioid, often long and leafy. Flowers blue or white, rarely yellow.

Species about 30; also in North and South Africa, Europe and Asia.

A. Biennials or Perennials.
- I. Calyx 5-cleft. Nutlets obliquely curved . . . 1. **A. undulata.**
- II. Calyx 5-parted. Nutlets straight, erect . . . 2. **A. strigosa.**

B. Annuals.
- I. Nutlets horizontal, wrinkled, short-beaked. Corolla-tube straight.
  - a) Flowers nearly sessile . . . . . 3. **A. aggregata.**
  - b) Flowers pedicelled . . . . . 4. **A. hispida.**
- II. Nutlets oblique, wrinkled-netted, acute. Corolla-tube straight.
  - a) Calyx-lobes lanceolate . . . . . 5. **A. aegyptiaca.**
  - b) Calyx-lobes linear . . . . . 6. **A. Milleri.**

1110. (1.) **Anchusa undulata** L. Spec. Plant. I (1753), p. 191. — Boiss. Flor. Or. VI, p. 152. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 724. — Rchbch. Ic. XVIII tab. 106 fig. III. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Aschers.-Schwein. Primit. Flor. Marmaric., p. 659 no. 222. — A biennial plant, 20—30 cm high, or sometimes somewhat more, grey, tomentellous-scabrous. Leaves oblong-lanceolate to linear, wavy-margined. Bracts ovate-cordate; pedicels shorter than the calyx; calyx campanulate, cleft for one-third to one half its length into triangular to lanceolate lobes; corolla blue, exserted; scales ovate, velvety; nutlets oblique, ovate, tubercled-wrinkled, not constricted above the ring. — Flow. December to March.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East.

Also known from all the other parts of the Mediterranean region.

1111. (2.) **Anchusa strigosa** Labill. Syr. Decad. III (1809), p. 7 tab. 4. — Boiss. Flor. Or. IV, p. 155. — Anchusa echinata Lam. Illustr. III, p. 1821. — A perennial plant, 40—80 cm high, rarely more, exceedingly strigose with prickly hairs arising from a tubercle, panicled above. Leaves entire or eroded-dentate, the basilar ones obovate-oblong to oblong, petioled, the upper ones lanceolate to linear. Bracts as long as the pedicel; pedicels shorter than the calyx; calyx-lobes oblong-linear; corolla 1—15 cm broad, blue to white. tube longer than the calyx; scales furnished with elongated papillae; nutlets 6 mm long, 3-angled, ribbed. — Flow. March.

M. ma. Alexandria-West, recently introduced.

Also known from Arabia Petraea, Syria and Mesopotamia to Persia.

1112. (3.) **Anchusa aggregata** Lehm. Asper. (1818), p. 619 tab. 47. — Boiss. Flor. Or. IV, p. 157. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 109 no. 725. — Anchusa parviflora Sibth. and Smith Flor. graec., p. 57 tab. 167 not of Willd. — Anchusa micrantha Roem. and Schult. Syst. Veg. IV, p. 98. — Lycopsis glomerata Urv. Enum., p. 22. — Echium humile Desf. Flor. Atlant. I, p. 65. — An annual plant, 30—50 cm high, densely strigose, dichotomously branched from the base and above. Leaves oblong-spathulate to linear-oblong and linear, repand, the lower ones long-petioled, the upper ones sessile. Racemes terminal, very dense, corymbose-capitate; flowers nearly sessile; calyx-lobes at length triangular-lanceolate; corolla blue, 2 mm broad, tube exserted; scales exserted, oblong, penicillate; nutlets transversely 5 mm, vertically 3 mm, with inflated ring at the base. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **Mp.** Rosetta; Damietta. — **N. f.** Medînet-el-Fayûm; Tamîa; Fidimîn. — **O.** Little Oasis; Dakhel; Great Oasis.

Local name: temalîq; qi'rî; lisân-el-na'ga; gilweyn.

Also known from Arabia Petraea, Palestine, Syria and Persia.

1113. (4.) **Anchusa hispida** Forsk. Flor. aeg.-arab. (1775), p. 40. — Boiss. Flor. Or. IV, p. 158. — Aschers. Flor. Rhinocol., p. 801 no. 182. — Aschers-Schweinf. Ill. Flor. d'Eg., p. 109 no. 726. — Aschers.-Schweinf. Ill. Flor. d'Eg. Supplem., p. 768. — Anchusa deflexa Lehm. Ind. Sem. Hort. Hamburg, p. 1823. — An annual plant, 20—50 cm high, or sometimes somewhat more. Rough with unequal bristles arising from a tubercle; stems numerous from the neck, prostrate, simple or forked-branched. Leaves remotely repand-denticulate, more or less wavy-margined, lanceolate, obtuse, the lower long-petioled. Flowers solitary in axils, minute, pedicels short, at length nodding; calyx-lobes lanceolate, at length spreading; corolla tubular, violet, not longer than the calyx, limb minute, scales papillose, obtuse; nutlets transversely ovate, nearly horizontal, with an acute-angled beak, areolate, minutely tubercled. — Flow. February to May.

M. ma. Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** El-ʿArîsh. — **D. l.** Kafr Hakîm; Abu-Roash; Pyramids of Saqqâra. — **D. i.** Ismailia; Sâlihîya. — **D. a. sept.** Not rare in the Wadies on calcarious ground, especially in shady places.

Local name: qir'î.

Also known from the other parts of the Orient to Mesopotamia and Persia.

1114. (5.) **Anchusa aegyptiaca** (L.) DC. Prodrom. X (1846), p. 48. — Boiss. Flor. Or. IV, p. 159. — Jaub. and Spach Illustr. Plant. Or. tab. 418. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 727. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 223. — Lycopsis aegyptiaca L. Spec. Plant. I, p. 138. — Asperugo aegyptiaca L. Spec. Plant. ed. II, p. 198. — An annual plant, 30—60 cm high, rarely more, pale green, warty, strigose, diffuse, prostrate or ascending, dichotomous. Leaves repand-dentate, oblong to oblong-lanceolate, tapering at both ends. Racemes very loose, leafy; pedicels extra axillary, as long as or longer than the calyx, usually recurved in fruit; calyx-lobes lanceolate, twice as long as the nutlets; corolla yellow, tube shorter than the calyx, limb 2 mm broad, scales exserted, velvety; nutlets 5 mm long, 3 mm broad. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East; Abukîr. — **N. d.** Alexandria; Damanhûr; Mansura; Benha-

el-'As;Tanta; Mehallet-el-Kebîr; Qalyûb; Cairo. — **D. a. sept.** Often in the mouthes of the Wadies.

Local name: shubbeyt; dabbûn (Forsk.).

Also known from Tunisia, Cyrenaica, Western Marmarica, Palestine, Syria, Mesopotamia and Persia.

1115. (6.) **Anchusa Milleri** Willd. Enum. Plant. Hort. Berol. I (1809), p. 179. — DC. Prodrom. X, p. 49. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 728. — Boiss. Flor. Or. IV, p. 159. — An annual plant, 30—50 cm high, or sometimes somewhat more, loose-hispid, not warty, diffuse or erect, branching from the base. Leaves repand, oblong, tapering at both ends, the lower ones petioled. Flowers at or above axils, forming loose, leafy racemes; pedicels as long as or longer than calyx, straight; calyx-lobes linear, twice as long as the nutlets; corolla pinkish-white, tube about twice as long as the calyx, limb 2 mm broad, scales exserted, glabrous at the tip; nutlets 3 mm long, 15 mm broad. — Flow. February to March.

M. ma. Mariut; Sidi-Gâber; Alexandria-West and -East. — **D. i. D. a. sept.** Common in sandy places and often on calcarious ground.

Local name: kahalâ (Schweinfurth).

Also known from Sinai, Syria and Mesopotania.

451. (11.) **Nonnea** Medic.

Calyx 5-cleft. Corolla funnel-shaped or tubular, straight, with hairy or fringed squamules near the middle of the tube. Nutlets 4 free, with a concave base, surrounded by a tumid, often plaited ring. — Prostate or ascending herbs with usually lanceolate to ovate leaves. Flowers in terminal racemes.

A small genus of only a few species, widely distributed throughout the Mediterranean region.

1116. **Nonnea Vivianii** DC. Prodrom. X (1846), p. 31. — Boiss. Flor. Or. IV, p. 165. — Coss. in Bull. Soc. Bot. France XII, p. 281. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 109 no. 729. — Anchusa ventricosa Viv. Flor. Libyc., p. 10 tab. VI fig. 1. — Annual herb, 10—40 cm high, or sometimes somewhat more, asperulous with short wool and scattered hairs. Leaves oblong to oblong-linear, obtuse, the basilar ones tapering at the base. Raceme terminal, simple or bifid; calyx cleft for one-fourth its length; corolla white, minute; nutlets slightly netted-plaited. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and -East.

Local name: blimish.

Also known from Tripolitania.

452. (12.) **Alkanna** Tausch.

Calyx 5-parted. Corolla regular, funnel-shaped, not plaited at throat but with small, transverse, glabrous, sometimes obsolete wrinkles at the naked throat, and a small, glabrous, ring-shaped nectary at base. Stamens whorled or spirally inserted near the middle of the tube; anthers nearly sessile, included. Stigma capitate or bilobed. Nutlets 4, or by abortion 2—1, warty or pitted-wrinkled, either slightly curved, with a horizontal beak, and broad, basilar sinus, or strongly curved with a nearly vertical beak, and narrow, basilar sinus; the areola flat, often stipitate at the base or toward the middle of the sinus. Pericarp brittle; seed curved. — Herbs, often with shrubby base, and colored roots.

A small genus widely distributed in the Mediterranean basin.

1117. **Alkanna tinctoria** Tausch in Flora (1824), p. 234. — Boiss. Flor. Or. IV, p. 227. — Rchbch. Ic. XVIII, tab. 115 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 744. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 665 no. 228. — Anchusa bracteolata Viv. Flor. Libyc., p. 10 tab. 4 fig. 2—3. — A perennial herb, 20—40 cm high, or more, velvety, intermixed with strigose bristles, grey or canescent, branching from the base. Leaves oblong to oblanceolate, obtuse, 1—3 cm long, dilated and half clasping at the base. Racemes at length elongated; bracts longer than the enlarged, fruiting calyces; corolla-tube a little longer than the calyx, limb 3 mm broad; nutlets 2 mm broad, areola somewhat stipitate. — Flow. February to March.

M. ma. Marmarica: Matruqa, everywhere in sandy places; Abusîr; Mariut; Montaza to Abukîr. — **D. a. sept.** Galala.

Local name: hinâ-el-ghûl.

Also known from all the other parts of the Mediterranean region and South-Eastern Europe.

453. (13.) **Lithospermum** Linn.

Calyx deeply 5-lobed, little accrescent; lobes narrow. Calyx-tube straight, subcylindrical; throat not closed by scales; lobes 5, orbicular, imbricate. Stamens 5, inserted in the corolla-tube; filaments very short; anthers oblong, obtuse or apiculate. Ovary with 4 distinct lobes, inserted on the narrow gynobase; style filiform; stigma usually terminal, 2-lobed; ovules erect. Nuts 4, ovoid, smooth or rugose, erect. Seeds straight; cotyledons flat. — Annual or perennial herbs or shrubs. Stem-leaves alternate. Flowers white, yellow or blue, arranged in bracteate scorpioid cymes.

A genus of about 40 species, widely dispersed, mainly in the temperate regions of both hemispheres.

A. Annuals. Nutlets ovate-triquetrous, tubercled or pitted-tubercled.
  I. Fruiting pedicels thickened.
    a) Nutlets acutely tubercled . . . . . 1. **L. arvense.**
    b) Nutlets slightly tubercled . . . . . 2. **L. incrassatum.**
  II. Fruiting pedicels not thickened . . . . . 3. **L. tenuiflorum.**
B. Shrubs. Nutlets ovate triquetrous, nearly smooth 4. **L. callosum.**

1118. (1.) **Lithospermum arvense** L. Spec. Plant. 1 (1753), p. 190. — Boiss. Flor. Or. IV, p. 216. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 740. — Rhytispermum arvense Rchbch. Ic. XVIII. tab. 113 fig. 5. — DC. Prodrom. X, p. 574. — Flor. Dan., tab. 456. — An annual plant, 20—40 cm high, or somewhat more, appressed-strigulose, green; stems branching from the base, erect or decumbent. Leaves obovate to oblong, oblong-lanceolate, and linear, the lower tapering to a petiole. Fruiting pedicels little thickened; ones corolla white, rarely bluish; nutlets pitted, acutely tubercled. — Flow. February to April.

M. ma. Mariut; Alexandria-West and -East.

Local name: hâlem.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Europe, Caucasia, Syria, Persia and Afghanistan.

1119. (2.) **Lithospermum incrassatum** Guss. Prodrom. Flor. Sic. I (1842), p. 211. — Boiss. Flor. Or. IV, p. 217. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 741. — Lithospermum Gasparrimii Heldr. in Guss. Syn. I, p. 217. — An annual herb, 20—40 cm high, or sometimes somewhat more, appressed-strigulose, green; stems branching from the base, erect or decumbent. Leaves obovate to oblong and linear, the lower ones tapering to a petiole. Fruiting pedicels thickened; corolla blue, rarely white; nutlets pitted, slightly tubercled. — Flow. March to April.

M. ma. Sidi Gâber; Ramle; recently introduced.

Also known from Arabia Petraea, Palestine and Syria

1120. (3.) **Lithospermum tenuiflorum** L. Fil. Supplem. (1781), p. 130. — Boiss. Flor. Or. IV, p. 217. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 742. — Rhytispermum tenuiflorum Rchbch. Ic. XVIII, tab. 113 fig. IV. — An annual herb, 20—50 cm high, strigulose-hispid, often yellowish, branching from the base. Leaves oblong-spathulate petioled, to oblong-linear sessile. Pedicels very short, unchanged in fruit; corolla blue, rarely white; nutlets 2 mm long, tubercled, not pitted, with two lateral gibbi and a short beak. — Flow. February to March.

M. ma. Alexandria (Delile).

Also known from Algeria, Tunisia, Tripolitania, Dalmatia, Greece, Palestine, Syria, Asia Minor, Mesopotamia and Persia.

1121. (4.) **Lithospermum callosum** Vahl Symb. Bot. I (1790), p. 14. — Boiss. Flor. Or. IV, p. 219. — Delile Illustr. Flor. d'Eg., tab. 16 fig. 2. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 743. — Aschers. Flor. Sirb., p. 812 no. 186. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 660 no. 227. — Aschers. Flor. Rhinocol., p. 801 no. 186. — A low shrub, 15—20 cm high, or sometimes somewhat more, very strigose with appressed, unequal bristles, canescent. Leaves 1—2 cm long, subsessile at the base, with callous margins. Racemes short, spike-like, loose in fruit; corolla-tube twice and a half to thrice as long as the very strigose calyx; throat hirtulous; nutlets 1 mm long, ovate-triangular, brownish, glossy, tubercles 1—2 or 0. — Flow. February to March.

M. ma. Marmarica: Ras-el-Kenâ'îs; Abukîr; Montaza; Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; Damietta; Gels-Mohammedîya; el-ʿArîsh. — **D. l.** Everywhere on bords of the desert in deep sandy places. — **D. i.** Sâlihîya; Ismailia; Ramses. — **D. a. sept.** Not rare on calcarious ground of the Wadies and plains.

Local name: hâlem (Ascherson); halâma(Schweinfurth).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea, Palestine and Persia.

454. (14.) **Arnebia** Forsk.

Calyx deeply 5-lobed, slightly accrescent; lobes narrow. Corolla-tube cylindrical, straight, without scales at the throat; lobes 5, patent, orbicular. Stamens inserted about the middle of the corolla-tube; filaments very short; anthers oblong, obtuse. Ovary with 4 distinct lobes inserted on the narrow gynobase; style filiform, bifid; stigmas terminal, capitate; ovules erect. Nuts 4, erect, ovoid, rugose; cotyledons thick. — Annual or perennial hispid herbs. Stem-leaves alternate. Flowers small, yellow or purple, arranged in scorpioid bracteate spikes or racemes.

A small genus of about 12 species, extending from North Africa through Western Asia to India.

A. Fruiting-calyx scarcely growing . . . . . 1. **A. hispidissima.**
B. Fruiting-calyx growing.
  I. Tube crested or tubercled.
    a) Bracts as long as or longer than the calyx 2. **A. decumbens.**
    b) Bracts shorter than the calyx . . . . . 3. **A. linearifolia.**
  II. Tube not crested or tubercled, lobes elongated 4. **A. tinctoria.**

1122. (1.) **Arnebia hispidissima** (Lehm.) DC. Prodrom. X (1846), p. 94. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 737. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Wight Icon., tab. 1393. — Boiss. Flor. Or. IV, p. 213. — Clarke in Hook. f. Fl. Brit. Ind. iv. 176. Lithospermum hispidissimum, Lehm. Pl. Asper. t. 39. — Toxostigma luteum, A. Rich. Tent. Fl. Abyss. ii. 86. — Anchusa asperrima, Del. Fl. Aegypt. Illustr. 55. — Strobila hispidissima, G. Don, Gen. Syst. iv. 327. — An annual herb, much branched, with stem, leaves and calyx densely clothed with spreading whithe bristly hairs. Root slender, fusiform, dyeing purple. Stem-leaves lanceolate, sessile, very hispid, 1—2 cm long; lower ones oblanceolate, obtuse narrowed to the base. Spikes dense, many-flowered, finally elongated; bracts ovate-lanceolate, lower as long as the flowers. Calyx 6 mm long; segments linear. Corolla yellow; tube longer than the calyx, hairy; limb 5 mm in diam. Nuts slightly rugose. — Flow. February to March.

M. ma. Abukîr. — **D. l.** Near Farshût (Schweinfurth). — **D. a. sept.** Serapeum; Bîr-Suez; Suez; Wady Dugla; Gebel ahmar. — **D. a. mer.** Kene to Qoseyr.

Local name: fehna (Schweinf.); attân (Klunzinger, Schweinfurth).

Also known from Tropical Africa and extending through the Orient to North India.

1123. (2.) **Arnebia decumbens** Coss. and Kral. in Bull. Soc. Bot. Franc. IV (1857), p. 402. — Aschers. Flor. Rhinocol., p. 801 no. 185. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 768. — Sickenberg. Contrib. Flor. d'Eg., p. 261. — Lithospermum decumbens Vent. Descr. Jard. Cels., tab. 37. — Lithospermum cornutum Ledeb. Flor. Altaic. I, p. 175. — Ledeb. Icon. I. tab. 25. — Arnebia cornuta Fish. and Mey. Index Semin. Hort. Petrop., p. 22. — Boiss. Flor. Or. IV, p. 213. — An annual plant, 10—40 cm high, or rarely more, hispid with appressed and yellowish spreading hairs; stems usually branching from the base. Lower leaves linear-oblong upper-ones linear-lanceolate, acute. Fruiting racemes elongated, loose, bracts as long as the calyx, or a little longer; base of the fruiting calyx indurated, pentagonal, gibbous, crested at angles, lobes linear comivent; corolla 1—2 cm long, tube hirsute once to twice as long as the calyx; stigma 2—4-cleft, nutlets 1 mm long, unequally tubercled. — Flow. March to April.

M. p. El-Qantara to El-'Arîsh. — **D. i.** Wady-el-'Arîsh. — **D. a. sept.** Wady Khafûra in the Northern Galala.

Local name: kahâli (Sinai Muschler).

Also known from Algeria, Tunisia, Tripolitania, Arabia, Syria, Mesopotamia, Persia, Caucasia and Sibiria.

1124. (3.) **Arnebia linearifolia** DC. Prodrom. X (1846), p. 95. — Boiss. Flor. Or. IV, p. 214. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 738. — Arnebia flavescens Boiss. Diagnos. Plant. Or. Ser. I fasc. XI, p. 117. — An annual herb, 50 cm to 1 m high; strigulose with yellow, appressed and spreading hairs; stems branching from the neck. Basilar-leaves oblong-spathulate, somewhat petioled; stem-leaves oblong-linear, obtuse. Fruiting racemes short, dense; bracts linear, somewhat shorter than the calyx; fruiting calyx growing much, inflated, scarcely indurated at the base, tubercled and hairy along prominent nerves, lobes often 2 cm long, linear-lanceolate, 3-nerved; corolla-tube villous, once and-a half as long as the calyx; nutlets 2 mm long, scrobiculate-tubercled. — Flow. March to April.

D. l. Kafr-Dâwud; Beni-Selâma; Kafr-Hakîn; Abu Roash; Pyramids of Gîza; Pyramids of Saqqâra. — **D. i.** Sâlihîya; Ismailia. — **D. a. sept.** Nefîsh; Serapeum; Suez.

Local name: hinâ-el-ghûl; kahaly (Wilkinson, Schweinfurth); ʾaweynet-el-muslemân (Schweinfurth).

Also known from Tripolitania, Arabia Petraea, Syria, Armenia and Persia.

1125. (4.) **Arnebia tinctoria** Forsk. Flor. aeg.-arab. (1775), p. 63. — Boiss. Flor. Or. IV, p. 215. — DC. Prodrom. X, p. 101. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 739. — Sickenberg. Contrib. Flor. d'Eg., p. 261. — Lithospermum tetrastigma Lam. Encyclop. III, p. 30. — Lithospermum tinctorium Vahl Symb. Bot. II, p. 33 tab. 28. — Lithospermum Arnebia Del. Illustr. Flor. d'Eg., no. 203. — A very low shrubby plant, 4—6 cm high, cinerascent with appressed, tubercled hairs; stem branching from the base. Leaves oblong-lanceolate, obtuse, tapering at the base. Fruiting racemes dense, short, one-sided; bracts linear, somewhat longer than the calyx; calyx hirsute, lobes linear, 1 cm long, somewhat 3-nerved; corolla-tube glabrous, pale violet, not longer than the calyx; stigma 4-cleft; nutlets smooth, glossy. — Flow. January to March.

D. i. Bîr-abû l'âruq (Barbey). — **D. a. sept.** Gebel ahmar; Great Petrified Forest.

Local name: shegret-el-arneb (Forsk.).

Also known from Arabia Petraea.

455. (15.) **Echium** Linn.

Calyx 5-partite; segments linear or lanceolate. Corolla-tube funnel-shaped, curved, the oblique throat not closed with scales; lobes 5, imbricate, orbicular, unequal. Stamens 5, unequally inserted below the middle of the corolla-tube; filaments filiform, often dilated at the base; anthers ovate or oblong, obtuse, small. Ovary with 4

distinct lobes inserted on the narrow gynobase; style filiform, bifid at the apex; stigmas small. Nuts 4, distinct, erect, ovoid, rugose. Seeds erect; cotyledons flat. — Herbs or shrubs. Stem-leaves alternate. Spikes scorpioid, bracteate. Flowers usually blue or white.

Species 30—40, spread through Europe, North Africa, Western Asia, and several shrubby types in the Canaries and Azores.

A. Stamens exserted.
- I. Corolla flesh-coloured, not more than 1,3 cm long — 1. **E. italicum.**
- II. Corolla red, white, or blue, 1,6—2 cm ore more in length.
  - a) Stems decumbent or prostrate . . . . . — 2. **E. sericeum.**
  - b) Stems erect.
    - 1. Corolla violet . . . . . — 3. **E. longifolium.**
    - 2. Corolla white or pale pink . . . . . — 4. **E. Rauwolffii.**

B. Stamens included . . . . . — 5. **E. setosum.**

1126. (1.) **Echium italicum** L. Spec. Plant. I (1753), p. 139. — Boiss. Flor. Or. IV, p. 205. — Icon. Engl. Bot., tab. 2081. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 731. — Aschers. Flor. Rhinocol., p. 801 no. 183. — Echium altissinum Jacq. Stirp. Austr. V, tab. 16. — Echium pyrenaicum Desf. Flor. Atlant. I, p. 164. — Echium pyramidatum DC. Prodrom. X, p. 23. — Echium asperrimum Lam. Illustr., p. 1854. — Echium asperulum M. B. Flor. Tauric. Cauc. I, p. 135. — A biennial plant, 50 cm to 2 m high, sometimes somewhat more, ashy or yellowish, bristly-hispid, ending in a spreading or somewhat thyrsoid panicle 30—80 cm long. Leaves appressed bristly, linear-lanceolate, the basilar ones tapering into a petiole, the floral ones long acuminate, shorte rthan the bifid racemes. Racemes loose, spreading in fruit; calyx-lobes lanceolate, densely setose, corolla white 1,3 cm long, twice as long as the calyx. — Flow. December to May.

M. ma. Sidi Gâber; Ramle; probably recently introduced.

Also knonw from Southern Europe, Arabia Petraea, Palestine and Syria.

1127. (2.) **Echium sericeum** Vahl Symbol. Bot. II (1791), p. 35. — Boiss. Flor. Or. IV, p. 207. — Lehm. Icon. Asper., tab. 49. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 732. — Aschers. Flor. Rhinocol., p. 801 no. 183. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 224. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Echium prostratum Delile Illustr. Flor. d'Eg., tab. 17 fig. 1. — Echium distachyum Viv. Flor. Libyc., p. 8 tab. 5 fig. 1. — Echium grandiflorum Coss. in Bull. Soc. Bot. Franc. XXXVI, p. 95 not of Desf. — A perennial herb, 20—40 cm high, canescent with minute, appressed wool, and appressed bristles; stems decumbent or prostrate. Leaves broad-

linear, the lower ones tapering to a petiole, margin usually involute, sometimes wavy; the floral ones triangular-lanceolate. Spikes panicled, at length 20—30 cm long; calyx-lobes linear; corolla red, drying blue, 2—2,5 cm long, twice and a half as long as the calyx; nutlets 3 mm long, grey, wrinkled-tubercled, pyramidal-beaked. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Mariut; Montaza; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; Damietta; el-'Arîsh.

Local name: kahalâ (Ascherson); hinâ-el-ghûl (Ascherson); sâq-el-hamâm; lisân-el-'asal (Forsk.).

Also known from Tunisia, Tripolitania, Greece, Cyrenaica, Western Marmarica and Arabia Petraea.

1128. (3.) **Echium longifolium** Delile Illustr. Flor. d'Eg. (1813), p. 192 tab. 16 fig. 3. — Boiss. Flor. Or. IV, p. 208. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 733. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — An annual herb, 30—60 cm high, or sometimes somewhat more, stems herbaceous, pubescent, and hispid with long hairs, branching. Leaves pale-green, the basilar ones lingulate, 10 to 20 cm long, long tapering at the base, the cauline one and floral one linear. Spikes terminal, at length elongated and loose; calyx white-bristly, lobes linear-lanceolate; corolla funnel-shaped, violet, thrice as long as the calyx; stamens little exserted; nutlets tetragonal-conical, sparingly tubercled-wrinkled, echinate. — Flow. December to March.

N. d. N. f. N. v. D. l. D. i. D. a. sept. D. a. mer. Extremely common on the low sandy hills, often as a weed in fields.

Local name: kaheyly; hinâ-ed-dâb' (Klunzinger); kahâly (Wilkinson); dahany (Schweinfurth).

Also known from Arabia Petraea.

1129. (4.) **Echium Rauwolfii** Del. Illustr. Flor. d'Eg. (1813). p. 195 tab. 19 fig. 3. — DC. Prodrom. X, p. 23. — Boiss. Flor. Or. IV, p. 208. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 734. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Annual, with a slender root, which stains purple. Stem erect, much branched, with copious spreading bristles. Stem-leaves sessile, linear-oblong, small, with copious white bulbous-based bristles; radical leaves oblanceolate, obtuse, 8—12 cm long, narrowed gradually into a short petiole. Spikes finally 9 cm or more long; bracts lanceolate, hispid. Calyx very hispid, 8—10 mm long; segments lanceolate. Corolla pink, half as long again as the calyx. Stamens reaching to the tip of the corolla-lobes. Nuts smooth, shining, $2^1/_2$ cm long. — Flow. March to April.

M. ma. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. Everywhere common.

Local name: kaheylâ (Forsk.); hinâ-el-ghûl; keïda (Ascherson).

Also known from Nubia and Arabia Petraea.

1130. (5.) **Echium setosum** Vahl Symb. Bot. II (1791), p. 35. — Boiss. Flor. Or. IV, p. 209. — Del. Illustr. Flor. d'Eg., p. 186 tab. 17 fig. 2. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 110 no. 735. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 225. — Echium spathulatum Viv. Flor. Libyc., p. 8 tab. 9 fig. 1. — Echium verecundum Viv. Eg. Dec., no. 25. — Appressed-stellate-tomentellous, with spreading, tubercled hairs intermixed; stems erect or ascending, loosely panicled. Basilar leaves 10 cm long, ovate to oblong, or oblong-spathulate, tapering to a petiole, feather-veined; cauline ones oblong, half-clasping; floral ones oblong-lanceolate, cordate at the base. Spikules peduncled; corolla blue, appressed hirtellous 2—3 cm long, trice as long as calyx, limb expanded; stamens sometimes little exserted; nutlets 3 mm long, rough-tubercled, keeled, bigibbous. — Flow. March.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Abukîr. — **D. l.** Abu-Roash, rare.

Only known from Egypt.

var. **parviflorum** Schweinf. and Muschler nov. var. — Flowers very small, often only 0,5—1 cm long.

M. ma. Mariut; Behig; Sidi-Gâber.

Only known from this locality.

456. (16.) **Onosma** Linn.

Calyx 5-parted or 5-cleft. Corolla tubular or club-shaped, regular, with naked throat, 5 teeth and a nectariform lobuled scale at the inner aspect of the base. Filaments adnate to the middle of the tube, more or less free above. Anthers sagittate at the base, membranous tipped, often coherent. Style long, stigma bilobed. Nutlets straight, triquetrous-ovate to oblong, glossy or tubercled-scrobiculate; basilar area flat. — Herbs or shrubs, often changing colour after flowering.

A small genus of only a few species in the Mediterranean region and the Orient.

1131. **Onosma frutescens** Lam. Illustr. (1791), no. 1837. — Boiss. Flor. Or. IV, p. 190. — Onosma echioides Sibth. and Smith Flor. graec., tab. 172 not of Linnaeus. — Onosma Tournefortii Griseb.

Spicil. II, p. 80 partly. — Onosma orientale Lehm. Icon. Asper. II, p. 376. — A perennial herb, 3—5 m high, branching from the base and above; stems leafy, flexuous. Basilar leaves oblong-spathulate, stem-leaves oblong to linear and linear-lanceolate. Racemes 1—3, terminal, capitate, little elongated in fruit; calyx-lobes 1 cm long in fruit, lanceolate-linear, connivent; corolla glabrous or puberulent, yellow, often drying purplish, one-third longer than the calyx; anthers somewhat exserted, longer than the filaments; nutlets 4 mm long, ovate, smooth, glossy. — Flow. March to April.

M. ma. Mariut; Montaza (Muschler).

Also known from Arabia Petraea and Palestine.

457. (17.) Podonosma.

Calyx 5-parted. Corolla tubular, with naked throat, furnished with a circular nectary. Filaments adnate below to the corolla; anthers sagittate at the base, long appendaged at the apex, exserted. Style glabrous, with indistinct stigma. Nutlets curved, inserted by a basilar, flat, substipitate areola, and ending in a horizontal beak. — Perennial herbs with aspect, indument, and nutlets of Alkanna, and flowers differing from those of Onosma principally by the long-appendaged, exserted anthers.

A small genus of only a few species in the Orient.

1132. **Podonosma galalense** Schweinf. ex Boiss. Flor. Orient. IV (1879), p. 1199. — A perennial herb, 30—50 cm high or sometimes somewhat more, glandular-pubescent, with intermixture of hairs with tubercled base, very brittle; branches densely leafy. Leaves sessile, oblong-lanceolate to linear-lanceolate, acute, the lower ones tapering at the base, the upper ones half-clasping, 3—4 cm long. Racemes leafy, at first capitate, then long, loose; calyx growing to 2 mm in fruit, lobes linear from a broader base, longer than the fruiting pedicel, more than half as long as the corolla; corolla bluish, 1 mm long; nutlets 2 mm long including beak, minutely tubercled. — Flow. April.

D. a. sept. Northern and Southern Galala.

Only known from these localities.

95. Verbenaceae.

Flowers irregular or rarely regular. Calyx persistent, truncate toothed or lobed. Corolla with 4 or 5, rarely 6—8 lobes or rarely truncate, the lobes more or less 2-lipped or nearly or quite equal, imbricate in the bud, the upper lip or uppermost lobe or sometimes the lateral one outside. Stamens inserted in the tube of the corolla,

usually 4 in pairs or nearly equal and alternating with its lower lobes, or when the corolla is regular 4—8 alternating with its lobes. Anthers 2-celled, the cells opening longitudinally and usually parallel. Ovary not lobed or only shortly 4-lobed, usually more or less perfectly divided into 2 or 4 cells or half-cells, with 1 ovule in each cell or half-cell, either anatropous and erect from the base, or more or less amphitropous and attached laterally or near the top so as to appear pendulous. Style terminal, simple, entire or more frequently with 2 short stigmatic lobes. Fruit dry or more or less drupaceous, the whole fruit or the endocarp separating into 2 or 4 nuts or pyrenes or quite dehiscent and 2 or 4-celled, and sometimes with an additional central cavity between the carpels having the appearance of a third or fifth empty cell. Seeds solitary in each cell half-cell or pyrene, erect, with or without albumen, the testa usually membranous. Embryo straight, with thick cotyledons and an inferior radicle. — Herbs, shrubs, trees or woody climbers. Leaves opposite whorled or rarely alternate, without stipules, entire, toothed or divided. Inflorescence various.

A large Order, of about 800 species, ranging over both the New and the Old World, most abundant within the tropics, but with several extra-tropical species, both in the northern and southern hemispheres. Bitter or adstringent properties predominate in the family, but these can hardly be said to be of medicinal importance. The teak *(Tectona grandis)*, the timber of which is so largely employed for shipbuilding, is the species of most economic importance. The genera Verbena, Lantana, and Clerodendron contain several well-known garden plants.

A. Inflorescence centripetal (spicate, racemose or capitate).
  I. Ovary 2-celled; cells 1-ovuled.
    a) Fruit fleshy . . . . . 1. **Lantana.**
    b) Fruit dry . . . . . 2. **Lippia.**
  II. Ovary 4-celled; cells 1-ovuled . . . . . 3. **Verbena.**
  III. Ovary 8-celled; cells 1-ovuled . . . . . 4. **Duranta.**

B. Inflorescence centrifugal.
  I. Inflorescence a compound cyme . . . . . 5. **Clerodendron.**
  II. Inflorescence capitate . . . . . 6. **Avicennia.**

458. (1.) **Lantana** Linn.

Calyx small, campanulate, 5-toothed. Corolla-tube cylindric; limb patent, obscurely bilabiate; lobes 5, orbicular. Stamens 4, didynamous, included in the corolla-tube; anthers ovoid, with parallel cells; ovary 2-celled; cells 1-ovuled; style short; stigma rather stout; ovules

attached at or near the base of the cells. Fruit drupaceous; flesh thin; endocarp 2-celled or splitting into 2 1-seeded pyrenes. Seeds exalbuminous. — Erect or subscandent shrubs, rarely herbs. Branches usually tetragonal. Leaves opposite or ternate, petioled, inciso-crenate, more or less rugose. Spikes dense, peduncled from the axils of the leaves; bracts persistent, ovate or lanceolate. Flowers small, yellow, white or red, often variable in colour in the same spike.

Species about 50, mostly Tropical American.

1133. **Lantana Camara** L. Spec. Plant. I (1753). p. 627. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119. — Schauer in DC. Prodrom. XI, p. 598. — Lantana aculeata L. Syst. Veg., ed. XV, p. 566 ex parte. — Bot. Mag., tab. 96. — Lantana scabrida Ait. Hort. Kew. ed. 1, II, p. 352. — An erect shrub, 1,5—3 m high. Branches pubescent, tetragonal, usually armed with irregular hooked prickles. Leaves opposite, petioled, cordate-ovate, acute, 2—6 cm long, crenate, very scabrous above, densely pubescent beneath. Heads permanently globose, 2 cm, diam.; bracts lanceolate, 5 mm long. Corolla-tube slender, pubescent, 3—6 mm long; limb 4 mm diam. Outer flowers red; inner ones yellow-white. Drupe black, shining, the size of a small pea. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere in gardens as ornamental tree.

A common species in the Tropics.

459. (2.) **Lippia** Linn.

Calyx membranous, either flattened with 2 keels or wings and 2-lobed, each lobe either entire or 2-toothed, or the whole calyx more equally tubular or globular and 2- or 4-toothed. Corolla-tube cylindrical or dilated upwards, the limb more or less distinctly 2-lipped, the upper lip entire or 2-lobed, the lower 3-lobed, all the lobes flat and spreading. Stamens 4, included in the tube or scarcely protruding. Ovary 2-celled, with 1 ovule in each cell erect from the base. Fruit not succulent, separating more or less readily into two indehiscent nuts. — Herbs or shrubs often glandular and aromatic or strong-scented. Leaves opposite or whorled, undivided. Flowers small, in simple spikes or heads, each one sessile in the axil of a single bract, without bracteoles, the bracts often closely imbricate.

A considerable American genus; species about 70.

1134. **Lippia nodiflora** Rich. Tent. Flor. Abyss. II (1847), p. 168. — Schauer in DC. Prodrom. XI, p. 585. — Boiss. Flor. O. IV, p. 532.

— Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119 no. 808. — Zapania nodiflora Lam. Illustr. I, p. 59. — Sibth. and Smith Flor. Graec., tab. 553. — Verbena nodiflora L. Spec. Plant. I, p. 28. — A prostrate or creeping perennial, with shortly ascending flowering branches, hoary with closely appressed hairs or nearly glabrous. Leaves from obovate to linear-cuneate, coarsely toothed at the apex, 1—2 cm long, narrowed into a petiole. Peduncles axillary but only one to each pair of leaves and much longer than them, each one bearing a spike at first short and ovoid, and sometimes very small, at length cylindrical, and when luxuriant attaining 1—1,5 cm or oven more. Bracts closely imbricate, broadly spathulate, more or less fringed or toothed at the end, nearly 2 $^1/_2$ mm long. Calyx shorter than the bract, membranous, flat, divided in front nearly to the base, at the back to about the middle, into two keeled lobes, entire or 2-toothed at the apex. Corolla-tube scarcely exceeding the calyx, the lower lip twice as long as the upper one and about half as long as the tube. Fruit not one mm long, readily separating into two nuts, with one half of the calyx adhering to each. — Flow. October to April.

M. ma. M. p. N. d. N. f. N. v. O. Frequently cultivated in gardens and subspontamous.

Local name: bileyha (Ascherson); hashîsh-lîbaye (Ascherson); widney (Ascherson).

Scattered in the Mediterranean region, Tropical and South Africa, Madagascar, and the warmer regions of Asia and America.

460. (3.) **Verbena** Linn.

Calyx tubular, 5-ribbed, 5-toothed, little changed in the fruiting stage. Corolla-tube subcylindrical, straight or curved; limb patent, subbilabiate, 5-lobed. Stamens usually 4, didynamous, included in the corolla-tube; filaments short, filiform; anther-cells parallel or slightly divergent. Ovary 4-celled; cells 1-ovuled; ovules attached laterally near the base of the cells; style usually short, 2-lobed at the apex. Fruit dry, oblong, about as long as the calyx-tube, separating into 4 narrow pyrenes. Seed erect, albuminous. — Herbs or undershrubs. Leaves usually opposite and toothed or more deeply cut. Inflorescence spicate; bracts solitary. Flowers small or medium-sized, inconspicuous or showy.

Species about 80, mostly American.

A. Annual. Leaves bipinnatifid . . . . . 1. V. supina.
B. Perennial.
I. Leaves simply pinnatifid . . . . . 2. V. officinalis.
II. Leaves delply incised . . . . . 3. V. bonariensis.

1135. (1.) **Verbena supina** L. Spec. Plant. I (1753), p. 29. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119 no. 810. — Boiss. Flor Or. IV, p. 534. — Schauer in DC. Prodrom. XI, p. 548. — Sibth. and Smith Flor. Graec., tab. 554. — Rchbch. Ic. XVIII, tab. 91 fig. 1. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 661 no. 241. — Verbena procumbens Forsk. Flor. aeg.-arab., p. 113. — Annual, densely pubescent. Stems much-branched from the base. Leaves deltoid, cuneate at the base, bipinnatifid; final segments oblong. Spikes at first dense; lower bracts lanceolate, as long as the calyx. Calyx 0,3 mm long; teeth minute. Corolla lilac; tube twice as long as the calyx; limb 0,3 mm diam. Capsule as long as the calyx. — Flow. December to April.

M. ma. Marmarica; Umm Rakum; Alexandria-West and- East; Mandara; Abukîr. — **N. d. N. f. N. v.** Everywhere common in field and along the Nile and the irrigation canals. — **O.** Dakhel.

Local name: morreyq (Ehrenberg); hend-el-ghorâb (G. Roth).

Spread through all parts of the Mediterranean region and South Eastern Europe.

1136. (2.) **Verbena officinalis** L. Spec. Plant. I (1753), p. 29. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119 no. 809. — Boiss. Flor. Or. IV, p. 534. — Rchbch. Ic. XVIII, tab. 91 fig. 2. — Schauer in DC. Prodrom. XI, p. 547. — An erect perennial 30—60 cm high, with long spreading wiry branches, sometimes nearly glabrous, usually with closely appressed hairs, sometimes more coarsely hirsute, or the inflorescence rough with glandular hairs. Lower leaves petiolate, obovate or oblong, coarsely toothed or cut; upper ones either deeply pinnatifid and lobed or toothed, or the uppermost small and lanceolate. Flowers usually very small, in slender spikes lengthening often to 10 or 20 cm, the lower ones becoming distant as the spike lengthens, the whole lilac corolla sometimes not 5 mm long, but in the larger-flowered forms the tube about $2\,^1/_2$ mm and the lower lip about as long. — Flow. October to April.

N. d. N. f. O. A common weed throughout the region.

Local name: hend-el-ghorâb.

The species is common in a great part of Europe and temperate Asia, more rare and perhaps introduced in North America, South Africa and within the Tropics.

1137. (3.) **Verbena bonariensis** L. Spec. Plant. I (1753), p. 28. — Hook. Bot. Misc. II, p. 166. — Verbena quadrangularis Vell. Flor. Flum. I, tab. 39. — Stems erect, simple or branched in the lower part, tetragonous, scabrididulous, hispid, villous, aphyllous in

the lower part. Leaves lanceolate, auriculate at the base, half-stemclasping, acute, incised-serrate, revolute, pinninerved, on both sides hirtulous, scabrid. Panicle terminal, cymose, fastigiate, cymes long pedunculate; spikes densely flowered, cylindrical; bracts lanceolate acuminate, ciliate as long as the calyx. Corolla violet, outside villous; tube as long as the calyx. Fruit 2 mm long, 4-cocced. — Flow. March.

N. d. Alexandria, bank of the Mahmudîya-Canal.

Widely distributed throughout the Tropics.

461. (4.) **Duranta.**

Calyx subcylindrical; teeth 5, minute. Corolla-tube cylindrical; lobes 5, spreading, short, obtuse, unequal. Stamens 4, didynamous, included in the corolla-tube; anther-cells parallel. Ovary 8-celled; cells 1-ovuled; style short; stigma oblique, dilated, 4-lobed. Drupe enclosed in the accrescent calyx; pyrenes 4. 2-celled. Seeds exalbuminous. — Shrubs, unarmed or spinous. Leaves opposite or verticillate, entire or toothed. Flowers racemose.

Species 4—5, wild only in Tropical America.

1134. **Duranta Plumierii** Jacq. Select. Am. (1763), p. 186 tab. 176 fig. 76. — Schauer in DC. Prodrom. XI, p. 615. — Bot. Regist., tab. 244. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119 no. 811. — Duranta repens L. Spec. Plant. I, p. 637. — Duranta erecta L. Spec. Plant. I, p. 637. — A shrub 1,5—3 m high, with glabrous or finely pubescent branchlets, unarmed or spinous. Leaves opposite, distinctly petioled, oblong, acute or obtuse, entire or inciso-crenate. Flowers in copious long terminal racemes; bracts linear. Flower-calyx 8—10 mm long. Corolla bright lilac, more than twice as long as the calyx; lobes suborbicular, pubescent inside; expanded limb 5—6 mm diam. Drupe yellow, the size of a pea, much shorter than the closed accrescent calyx. — Flow. December to February.

M. ma. M. p. N. d. N. f. N. v. Cultivated everywhere in gardens as an ornamental shrub, often naturalized.

Local name: benefshig frengy (Ascherson).

A native of Tropical America, now widely spread in the Old World.

462. (5.) **Clerodendron.**

Calyx not accrescent; tube campanulate; lobes 5, equal, longer or shorter than the tube. Corolla-tube cylindrical; lobes 5, obovate, spreading or slightly-reflexed, subequal or unequal. Stamens 4, inserted below the throat of the corolla-tube; filaments long, filiform,

involute in bud; anthers ovoid or oblong, with parallel cells. Ovary imperfectly 4-celled; cells 1-ovuled; style long, bifid at the apex. Fruit a globose drupe with a fleshy pericarp and 4 smooth or rugose pyrenes. Seed oblong, exalbuminous. — Trees or shrubs, sometimes scandent. Leaves opposite, rarely ternately verticillate, entire or toothed. Cymes axillary or terminal, lax or dense. Flowers small or large, various in colour.

Species about 100, concentrated in the warmer regions of the Old World, a few American.

1139. **Clerodendron Acerbianum** (Vis.) Boiss. Flor. Or. IV (1879), 536. — Aschers-Schweinf. Ill. Flor. d'Eg., p. 120 no. 812. Volkameria Acerbiana Visiani Icon. Plant. Aeg. Nub., p. 23 tab. 4 fig. 1. — Schauer in DC. Prodrom. XI, p. 656. — An erect shrub, with densely pubescent branchlets. Leaves 2—4-nate, shortly petioled, ovate, acute, entire, rounded at the base or slightly cordate, pubescent, especially beneath, the lower 5—8 cm long. Flowers in dense terminal and axillary peduncled clusters; bracts linear, as long as the calyx. Calyx densely pubescent, 2 cm long; tube short, campanulate; lobes lanceolate. Corolla white; tube pubescent, 2 cm long; lobes ovate, sub-equal, 4 mm long. Stamens 1 cm long. Fruit globose, 8 mm in diam., covered with spongy processes so that it resembles a bramble. — Flow. March to April.

D. a. mer. Gebel Silsele.

Also known from Tropical Africa.

463. (6.) **Avicennia** Linn.

Calyx divided to the base into 5 distinct segments or sepals. Corolla-tube short and broad; limb of 4 nearly equal spreading lobes or the upper one rather larger. Stamens 4, inserted in the throat, with the anthers slightly protruding. Ovary 1-celled, with 4 ovules collaterally suspended from a central column, which has 4 angles between the ovules, imperfectly dividing the ovary into 4 cells. Fruit a compressed capsule, the pericarp opening in 2 valves. Seed solitary, erect, without integuments (the integuments of the ovule not developed); embryo with 2 very large cotyledons folded longitudinally, a very hairy radicle, and a prominent plumule, which germinates before the fruit drops off. — Shrubs. Leaves opposite, undivided. Flowers in small cymes in the upper axils or in terminal panicles.

The genus consists of very few species, widely distributed over the warmer maritime regions of the New and the Old World, and very nearly related to each other.

1140. **Avicennia officinalis** L. Spec. Plant. ed. I (1753), p. 110. — Boiss. Flor. Or. IV, p. 536. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 125 no. 813. — A small tree, the branches inflorescence and under side of the leaves white or silvery with a very close tomentum, more silky on the flowers, the upper side of the leaves usually glabrous when full-grown, black and shining when dry Leaves coriaceous, usually lanceolate or ovate-lanceolate, 5—6 cm long, acute and contracted into a petiole, but varying to elliptical or obovate, and very obtuse. Cymes contracted into small heads on rigid angular peduncles, which are often 2 together in the upper axils or several in a small terminal leafy thyrsus. Bracts shorter than the sepals. Sepals orbicular or broadly ovate, concave, hirsute, and ciliate, about $2^1/_4$ mm long. Corolla-tube shorter than the sepals, lobes ovate, rather longer than the tube, the upper inner one rather larger than the others. Ovary very hairy. — Flow. January.

R. From the island of Qesysum near Râs-el-Ginema southward.

Local name: shora.

Also known from the tropical shores of both hemispheres.

96. Labiatae.

Flowers hermaphrodite, irregular. Calyx inferior, gamosepalous, persistent, often accrescent; limb usually 5-toothed, sometimes bilabiate or 6—10-toothed. Corolla gamopetalous; limb usually bilabiate, 2 lobes being represented by the upper lip and 3 by the lower one. Stamens epipetalous, usually 4, didynamous, sometimes reduced to 2; anthers usually 2-celled; cells parallel or divaricate, often confluent. Hypogynous disk thick and fleshy. Ovary superior, 4-lobed; style produced from the centre of the lobes, forked at the tip. Fruit of 4 nutlets, usually included in the persistent calyx. Seeds solitary in the nutlets, erect; albumen scanty or wanting; cotyledons flat or convex; radicle short, inferior. — Herbs or shrubs, rarely scandent; stems usually 4-angled. Leaves exstipulate, opposite or verticillate (very rarely alternate), crenate or entire, sessile or petioled, usually simple often, as are the other parts of the plant, furnished with glandular dots. Flowers verticillate, the two cymes which form the whorl usually congested into umbels; bracts minute or large and foliaceous; pedicels often bracteolate.

A vast family of about 3300 species, spread over every quarter of the globe, and readily known from all Sympetals, except Borragineae, by the 4-lobed ovary and the 4 small nuts resembling naked seeds in the bottom of he calyx; and from Borraginaceae by their opposite leaves, the want of the fifth stamen, and usually by the more irregular flowers. Most of the species

have also a peculiar strong scent, either highly aromatic in many of our potherbs, or as disagreeable in several species of Stachys. Distinct, however, as the whole family is, the genera into which it has been divided are much less so than could be wished. Those especially which are allied to Stachys are separated from it by slight differences in the shape of the calyx and corolla, which are not always easy to appreciate.

Among Labiate genera the European, the sweet Basil (Ocymum), Lavender (Lavandula), Rosemary (Rosmarinus), Balm (Melissa), Savory (Satureia), and Hyssop (Hyssopus), are cultivated among culinary potherbs; several species of Coleus, including the Patchouly, in our hothouses; the shrubby Phlomis and Leonotis, and the herbaceous Perillas, Monardas, and Dracocephalums, and others, in our flower-gardens.

A. *Lavanduleae.* — Stamens 4, declined, included. Anthers confluent, 1-celled.
- I. Calyx-tube not closely ribbed.
  - a) Lower lip of the corolla small, and not very concave . . . . . 1. **Ocimum.**
  - b) Lower lip of the corolla large, concave 2. **Plectranthus.**
- II. Calyx-tube with many close ribs . . . . . 3. **Lavandula.**

B. *Satureieae.* — Stamens 4 or 2, equal or the anterior longer, distant, divergent or ascending. Anthers with 2, parallel or divergent cells. Calyx (in ours) 5—10—13-nerved.
- I. Corolla 4-toothed, scarcely if at all, bilabiate 4. **Mentha.**
- II. Corolla bilabiate.
  - a) Flowers in ovate or oblong spikes with imbricated bracts . . . . . 5. **Origanum.**
  - b) Flowers in whorls; whorls interrupted . 6. **Thymus.**
  - c) Flowers in axillary cymes.
    1. Calyx small, 5-toothed . . . . . 7. **Micromoeria.**
    2. Calyx slightly flattened at the upper surface . . . . . 8. **Melissa.**

C. *Monardeae.* — Perfect stamens 2, anterior.
- I. Connective astriate the filaments. Inflorescence whorled . . . . . 9. **Salvia.**
- II. Connective continuous with the filaments. Inflorescence in axillary racemes . . . . . 10. **Rosmarinus.**

D. *Stachydeae.* — Perfect stamens 4, under the upper lip, the anterior pair longer, or all enclosed in the tube. Calyx 5—10-nerved. Nutlets dry.
- I. Fruiting-calyx open. Stamens and style included in the corolla-tube . . . . . 11. **Marrubium.**

II. Fruiting-calyx open. Stamens more or less exserted from the tube.
a) Nutlets rounded at the tip . . . . . 12. **Stachys.**
b) Nutlets acutely triquetrous.
1. Calyx 5-toothed . . . . . 13. **Lamium.**
2. Calyx 8—10-toothed, rarely with fewer teeth.
α) Calyx not bilabiate.
* Lobes of the style subequal . . 14. **Ballote.**
** Lobes of the style unequal.
† Lower lips of the corolla long.
Δ Calyx-teeth 10 . . . . 15. **Leucas.**
ΔΔ Calyx-teeth 5 . . . . . 16. **Phlomis.**
†† Lower lips of the corolla short 17. **Leonotis.**
β) Calyx bilabiate, scariose . . . . . 18. **Otostegia.**
3. Calyx-tube fleecy or cottony, with 5 spiny teeth . . . . . 19. **Eremostachys.**

E. *Prasieae.* — As in the last tribe, but the nutlets fleshy . . . . . 20. **Prasium.**

F. *Ajugoideae.* — Perfect stamens 4, ascending, with divaricate anther-cells. Corolla nearly 1-lipped, by obsolescence of the upper lip. Nutlets dry, pitted or reticulate.
I. Corolla deciduous. lower lip 5-lobed . . . 21. **Teucrium.**
II. Corolla marcescent, lower lip 3-fid . . . . 22. **Ajuga.**

464. (1.) **Ocimum** Linn.

Fruiting-calyx enlarged and reflexed, the upper tooth orbicular or ovate with the margins decurrent, forming an upper lip, the 4 lower teeth small, pointed, equal or the two lowest with longer points. Corolla-tube straight, rarely exceeding the calyx, 4 upper lobes united in a broad shortly 4-lobed upper lip, the fifth lower lobe entire, flat or slightly concave, about as long as the upper lip. Stamens 4, declinate, the 2 upper ones usually with a tooth or tuft of hairs near the base; anther-cells confluent. Style-lobes subulate or somewhat flattened. Nuts smooth or minutely-granular. — Herbs undershrubs or rarely small shrubs. Foliage usually densely dotted and highly scented. Flowers in false-whorls of 6, rarely 10, arranged in terminal racemes, the floral leaves reduced to small deciduous bracts.

The genus extends over the tropical and subtropical regions of the New as well as the Old World, two or three species having been very long in cultivation amongst aromatic herbs.

1141. **Ocimum basilicum** L. Spec. Plant. I (1753), p. 833. — Boiss. Flor. Or. IV., p. 539. — Benth. in DC. Prodrom. XII, p. 32. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120. — Lam. Illustr., tab. 514. — Ocimum graveolens A. Br. in Flora (1841) Abtl. I., p. 265. — Ocimum Petitianum A. Rich. Tentam. Flor. Abyss. II., p. 176. — An erect annual, with much-branched glabrous or slightly pubescent stems 60—90 cm long. Leaves distinctly petioled, ovate, membranous, 2—5 cm long, glabrous or slightly pubescent. Racemes moderately dense, the end one finally 10—20 cm long; rhachis slightly pubescent; pedicels very short; bracts ovate, about as long as the whorls. Calyx finally 5 mm long; upper lobe orbicular, much longer than the very short campanulate tube; lower lobes deltoid-mucronate, protruding beyond the upper one. Corolla 8—10 mm long, white, or tinged more or less with purple. Stamens slightly exserted, the posticous filaments appendiculate with a tooth above the base. — Flow. November to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Abundantly cultivated in the Arabic gardens often naturalized.

Local name: sa'atar hendy (Ascherson); generally; rîhân.

Widely spread in Northern and Tropical Africa and throughout Tropical Asia.

465. (2.) **Plectranthus** L'Hérit.

Fruiting calyx in the Egyptian species reflexed, the upper tooth broad and sometimes decurrent, the 2 lowest long and pointed, the lateral ones shorter, in some other species the teeth all nearly equal. Corolla-tube longer than the calyx, gibbous or produced into a spur on the upper side; upper lip 3- or 4-lobed, lower lip entire, concave, longer than, or rarely rather shorter than the upper one. Stamens declinate, free, without any appendage; anther-cells confluent. Style shortly bifid. Nuts smooth or slightly granular. — Herbs, undershrubs, or in species not Egyptian, shrubs. Flowers usually numerous, rarely only 6, in false-whorls, often developed into loose opposite cymes forming terminal, panicles.

The genus is widely spread over tropical and subtropical Asia and Africa. Species 100—120.

1142. **Plectranthus Schimperi** Vatke in Linnaea XXXVII (1871), p. 317. — Baker in Flor. Trop. Africa V., p. 418. — An annual, with much-branched slender fragile glabrous stems 60 to 96 cm long. Leaves distinctly petioled, ovate, acute, membranous, crenate, slightly hairy, 2—5 cm long. Inflorescence a lax terminal panicle, with compound cymes on slender ascending peduncles from

the axils of the upper leaves; pedicels pubescent, long or short. Flower-calyx pubescent, 3 mm long; teeth ovate, equal, shorter than the tube. Corolla-tube twice as long as the calyx; lips 5 mm long. — Flow. February.

N. v. mes. Island of the Sirdar near Aswân (Muschler).

Also known from Abyssinia, where the plant is common in hedges and at the foot of mountains.

466. (3.) **Lavandula** Linn.

Calyx cylindric, straight, usually 13-nerved; teeth short. Corolla-tube slender, cylindric; limb oblique, small, obscurely bilabiate. Stamens 4, didynamous, declinate, included in the corolla-tube; filaments free, filiform; anther-cells confluent. Disk confluent with the persistent base of the ovary. Nutletles smooth, glabrous. — Perennial herbs or shrubs, fragant. Leaves simple or decompound. Panicles spicate; whorls 2- or many-flowered; bracts persistent; upper often large, membranous, highly coloured. Corolla small, blue or lilac.

Species about 30, extending from Madeira to India.

A. Leaves entire . . . . . 1. **L. atriplicifolia.**
B. Leaves compound.
I. Calyx-teeth oblong-cylindrical . . . . . 2. **L. multifida.**
II. Calyx-teeth deltoid . . . . . 3. **L. pubescens.**
III. Calyx-teeth lanceolate . . . . . 4. **L. coronopifolia.**

1143. (1.) **Lavandula atriplicifolia** Benth. in DC. Prodrom. XII, p. 146. — Boiss. Flor. Or. IV., p. 541. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 814. — A low shrubby plant, shortly canescent-tomentose. Branches erect. Leaves entire, linear-oblong or rarely oblong-lanceolate. Spikes somewhat ternate densely paniculate flowers solitary, opposite. — Flow. February to March.

D. a. mer. (?) Collected by Figari in Upper Egypt.

Only known from this locality.

1144. (2.) **Lavandula multifida** L. Spec. Plant. I (1753), p. 800. — Boiss. Flor. Or. IV, p. 541. — Ging. Hist. Nat. Lavand., tab. 11. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 815. — Sickenberg. Contrib. Flor. d'Eg., p. 266. — A perennial plant, 50—60 cm high, sometimes 1,50 m high, pubescent-viscidulous. Stems erect oppositely branched. Leaves bipinnatisect, lobes short, oblong-linear, rarely linear, acute. Spikes solitary or paniculate, linear, densely flowered; bracts shortly puberulous, oblong, acuminate shorter than the calyx, nerved; calyx puberulous oblong-cylindrical, teeth triangular acute

the uppest one larger and somewhat broader than the others; corolla twice as long as the calyx; stigma ovate. — Flow. February to March.

D. a. mer. (?) Upper Egypt.

Also known from Morocco, Algeria, Tunisia, Tripolitania, and Spain.

1145. (3.) **Lavandula pubescens** Decsne. Florul. sinaic. (1835), p. 8. — Boiss. Flor. Or. IV, p. 541. — Benth. in DC. Prodrom. XII, p. 147. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 816. — Jaub. & Spach Illustr. Plant. Or., tab. 375. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — An erect much-branched perennial herb, with slender square hairy stems. Leaves broad, bipinnatifid, with linear segments. Panicles long, slender; whorls 2-flowered; bracts ovate, 5—6 mm long; upper ones not dilated and membranous. Calyx as long as the bract; teeth all small, deltoid. Corolla-tube a little longer than the calyx; limb very small. — Flow. December to March.

D. a. sept. D. a. mer. Common in the Wadies, in shady places on stony ground.

Also known from Arabia and Tropical Africa.

1146. (4.) **Lavandula coronopifolia** Poir. Encyclop., Supplem. III (1813) p. 308. — Boiss. Flor. Or. IV, p. 542. — Benth. in DC. Prodrom. XII, p. 147. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 817. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Lavandula striata Delile Illustr. Flor. d'Eg., tab. 32 fig. 1. — Lavandula multifida Burm. Flor. Ind., tab. 38 fig. 1. — An erect much-branched perennial herb, with slender square glabrous branchlets. Leaves sessile, cut down to a narrowly-winged rhachis; segments erecto-patent, linear with revolute edges, simple or pinnatifid. Panicles slender, cylindric, 5—8 cm long, lax downwards; bracts rigid, ovate-lanceolate, the lower as long as the calyx; upper not dilated. Calyx pubescent, 5—6 mm long; teeth equal, lanceolate. Corolla blue, twice as long as the calyx-tube. — Flow. November to April.

D. a. sept. D. a. mer. One of the most characteristic plants of the Wadies on calcarious ground. — A good fodder for donkeys.

Local name: diktaê (Schimper); zeyte (Wilkinson); natash (Klunzinger).

Also in Tropical Africa, the Cape Verde Islands through Northern Africa, also in Western Asia southward to Arabia.

467. (4.) **Mentha** Tourn.

Calyx regular or slightly 2-lipped, 5-toothed. Corolla-tube not at all or scarcely exceeding the calyx; limb 4-lobed, the lobes all

equal and spreading or the upper one broader and notched. Stamens, 4, equal, erect, distant; filaments glabrous; anthers with 2 parallel cells. Style shortly bifid. Nuts smooth. — Herbs, usually copiously dotted and strongly scented. Flowers small, in false-whorls usually dense rarely few flowered, all axillary or, forming terminal spikes, with the floral leaves reduced to bracts. Bracts within the false-whorls minute, or rarely subulate and as long as the calyx.

A natural genus, not numerous in species, but widely diffused over the greater part of the globe without the tropics, and most of the species, from the variety of situations to which they will adapt themselves, vary so much as to render their exact definition almost hopeless. Many of them also propagate so readily from suckers, that individual varieties are perpetuated so as to assume the appearance of species. Almost all the species vary in the stamens, in some individuals much longer than the corolla, in others included within the tube, and often barren; and in several species individuals occur with all the leaves crisped and cut, and have been published as distinct, under the names of M. crispa or crispata.

A. Whorls capitate or spiked. Throat of the calyx naked, teeth nearly equal . . . . . 1. **M. sylvestris.**
B. Whorls remote. Throat of the calyx closed by a hairy ring . . . . . 2. **M. Pulegium.**

1147. (1.) **Mentha sylvestris** L. Spec. Plant. I (1753), p. 804. — Boiss. Flor. Or. IV, p. 543. — Rchbch. Ic. XVIII. tab. 82. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 818. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Benth. in DC. Prodrom. XII, p. 166. — Mentha nigrescens C. Koch in Linnaea XXI, p. 648. — Mentha microphylla C. Koch in Linnaea XXI, p. 648. — Rootstock, as in most Mints, more or less creeping, the stems 30—70 cm high, erect, slightly branched, and, as well as the whole plant, more or less hoary with a short close down. Leaves closely sessile, broadly lanceolate or narrow-ovate. Flowers small and numerous, in dense cylindrical spikes, 2—5 cm long, usually several together, forming an oblong terminal panicle. — Flow. December to March.

N. d. N. o. Often along the irrigations canals and in fields.

Local name: habaq.

Throughout Europe and Western Asia.

var. **niliaca** Del. Illustr. Flor. d'Eg. (1813), p. 123. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 120 no. 818. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Mentha silvestris β stenostachya Boiss. Flor. Or. IV, p. 543. — Mentha tomentosa Urv. Enum., p. 67. — Mentha canescens Sieb. in exsics. — Mentha Sieberi C. Koch in Linnaea XXI,

p. 649. — Spikes long, cylindrical, in the lower part often interrupted. Flowers smaller. Leaves tomentose or lanate often plicate and undulate at tho margin. — Flow. March.

N. d. Damanhur; Fûa; Rosetta; Mansura; Zifta; Meballet-el-Kebîr; Zaqaziq; Tanta; Qalyub; Cairo. — **N. f.** Medînet-el-Fayûm; Senûris; Senhûr; Tamîa; El-Wady. — **N. v.** Siut; Luksor; Aswân. — **O.** Dakhel; Great Oasis.

Local name: habaqbaq (Delile); habaq (Ascherson, G. Roth.); habaq-el-bahr.

Also known from South Europe.

1148. (2.) **Mentha Pulegium** L. Spec. Plant. I (1753), p. 807. — Boiss. Flor. Or. IV, p. 545. — Benth. in DC. Prodrom. XII, p. 175. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 819. — A perennial, with slender prostrate much-branched pubescent or nearly glabrous stems. Leaves small, petioled, ovate, crenate. Flowers in distant globose axillary whorls. Calyx 1,5 mm long; upper teeth deltoid, lower lanceolate. Corolla-tube shortly exserted; lobes small, oblong. — Flow. February to March.

N. d. Damanhur; Desûq; Er-Rahmâniyel; Tanta; Shirbin; Bendêla; Mansura; Zaqaziq; Bebbês; Cairo. — **N. f.** Medînet-el-Fayûm; Begîg; El-Hammâm; Biahmu; Gharaq; Senhûr. — **N. v.** Siut. — **O.** Little Oasis; Farâfra; Dakhel; Great Oasis.

Local name: habaq (Delile); na'na' (Ascherson); generally: Fleyha or Fileyhe.

Also known from all the other parts of the Mediterranean region.

468. (5.) **Origanum** Linn.

Herbs or undershrubs, with the principal characters of Thymus, but of taller growth, and especially differing in inflorescence. The flowers are in compact heads, with a bract under each flower at least as long as the calyx, the whole forming terminal corymbs or panicles. The calyx is also variable, in our species more regular than in Thymus, in some other ones quite as decidedly 2-lipped as in that genus, and the lips sometimes entire.

Besides our common species, the greater number of Origanums are east Mediterranean, including the sweet Marjoram of our gardens.

1149. **Orignanum Majorana** L. Spex. Plant. I (1753), p. 824. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121. — Rootstock perennial, shortly creeping; the annual stems erect, 30—60 cm high, more or less hairy. Leaves stalked, ovate or ovate-lanceolate, 3,5 or more long, and slightly toothed. Flowers purple or rarely white, in globular compact heads, forming a terminal trichotomous panicle.

Bracts ovate, about the length of the calyx. Calyx very hairy inside the mouth, with short, nearly equal teeth. Corolla twice as long as the calyx, with 4 broad, nearly equal lobes, of which the upper one is broader and nearly erect. The two longest stamens, and sometimes all four, project beyond the corolla. — Flow. all the year round.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. D. s. mer. Cultivated everywhere in gardens and often naturalized.

Local name: mardaqûsh; bardaqûesh.

Origin incertain; as a potherb widely distributed through Europe and Asia.

469. (6.) **Thymus** Tourn.

Low, much branched, spreading or procumbent undershrubs or herbs with small leaves, usually entire, and flowers in terminal leafy heads or loose spikes. Calyx 2-lipped; the upper lip 3-toothed, the lower 2-cleft, the mouth closed with hairs after flowering. Corolla with the upper lip erect, nearly flat; the lower spreading, broadly 3-lobed. Stamens (when perfect) 4, the lower ones diverging, as long as or longer than the corolla.

A genus of several species, chiefly from the Mediterranean region and central Asia, where they are very variable and difficult to determine. In northern Africa, however, there are but a few species wild. The garden Thyme, cultivated as a potherb, is T. vulgaris, from southern Europe.

A. Calyx terete, corolla included or scarcely exserted . . **T. Bovei.**
B. Calyx flattened, 2-edged. Corolla exserted . . . . . **T. capitatus.**

1150. (1.) **Thymus Bovei** Benth. in DC. Prodrom. XII (1848), p. 203. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 820. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Thymus Serpyllum η angustifolius Boiss. Flor. Or. IV, p. 556. — Thymus argaeus Boiss. and Bal. Diagn. Plant. Or., Ser. II fasc. IV p. 7. — Stems procumbent, slender, very much branched, perennial, and hard but scarcely woody at the base, forming low dense tufts, from a few cm to near 40 cm in diameter, and often almost covered with the purple flowers. Leaves very small, linear-oblong or oblong, fringed at the base by a very few long hairs on each side; the floral leaves similar but smaller. Flowers usually 6 in the whorl, without any other bracts than the floral leaves, forming short, terminal, loose, leafy spikes. Calyx usually hairy, and the whole plant sometimes covered with short, rather stiff, hoary hairs. — Flow. March to April.

D. i. Between Suez and Gaza. — **D. a. sept.** Suez; Galala.

Local name: sa'atar.

Also known from Greece, Arabia, Petraea and Palestine.

1151. (2.) **Thymus capitatus** (L.) Link and Hoffmg. Flor. Portug. I (1809), p. 123. — Boiss. Flor. Or. IV, p. 560. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 821. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 661 no. 242. — Benth. in DC. Prodrom. XII, p. 204. — Satureia capitata L. Spec. Plant. I, p. 795. — Hymbra capitata Griseb. Spic. II, p. 127. — Coridothymus capitatus Rchbch. Ic. XVIII tab. 70 fig. II. — An undershrub, 20—40 cm high or sometimes somewhat more, canescent; branches thick, stiff, at length spinescent. Leaves stiff, linear, triquetrous, 2—4 mm long, dotted, ciliate at base, with clusters of young leaves in axils. Head ovate, dense, 6—8 mm long; bracts ovate and oblong, cucullate, ciliate, densely imbricated, concealing calyx; upper lip of the calyx with short connivent teeth, the lower one longer, with subulate teeth. — Flow. February to April.

M. ma. Marmarica; Umm Rakum; Matruqa; Abusîr; Mariut; Montaza; Behig; Alexandria-West, and -East; Abukîr.

Local name: sa'atar (Ascherson).

Also known from all the other parts of the Mediterranean basin, except South France.

470. (7.) **Micromeria** Benth.

Calyx-tube cylindric, 13—15-nerved; teeth acute, nearly equal. Corolla-tube straight; limb short, bilabiate; upper lip erect, nearly flat; lower patent, 3-lobed. Stamens 4, didynamous, ascending; anthers 2-celled. Disk equal or reduced to an anticous gland. Style bifid at the apex. Nutles small, ovoid or oblong. — Herbs or under-shrubs. Leaves entire or crenate. Whorls axillary or crowded into a terminal spicate panicle. Flowers small.

Species 60, spread widely in both hemispheres.

1152. **Micromeria nervosa** (Desf.) Benth. Labiat. (1832—1836), p. 376. — Boiss. Flor. Or. IV, p. 569. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 243. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 822. — Satureia nervosa Desf. Flor. Atlant. II, p. 9 tab. 121 fig. 2. — A perennial herb, 20—40 cm high or sometimes somewhat more, short pubescent or glabrescent below, villous above, branching from the prostrate base; stems simple or sparingly branched, ascending. Leaves sessile, with revolute margins, somewhat cordate at the base, ovate acutish, 5—8 mm long. Cymes hispid, many-flowered, short-peduncled, the lower distant; calyx-teeth bristle-like; corolla pink. — Flow. March to April.

M. ma. Marmarica: Umm Rakum; Matruqa; Mariut; Montaza; Alexandria-West and -East.

Also known from Algeria, Tunisia, Tripolitania, Cyrenaica, Western Marmarica, Italy, Sicily, Greece, Syria and Palestine.

471. (8.) **Melissa** Linn.

Calyx tubular-bell-shaped, 13-nerved, 2-lipped; the upper lip flattish, 3-toothed, the lower 2-cleft, beardless in the throat. Corolla tube recurved-ascending, 2-lipped; upper lip erect, the lower 3-cleft, spreading. Stamens 4, curved and connivent under the upper lip: anther cells at length diverging. Nutlets smooth. — Herbs, with few-flowered 1-sided axillary cymes, and white or yellow flowers.

A small genus of only a few species in Europe and the Mediterranean region.

1153. **Melissa officinalis** L. Spec. Plant. I (1753), p. 827. — Boiss. Flor. Or. IV, p. 584. — Rchbch. Ic. XVIII, tab. 60 fig. II—III. — Melissa altissima Libth. and Smith Flor. graec. VI, p. 72 tab. 579. — Stem erect, branching; leaves ovate, crenate, truncate or cordate at the base; cymes 3—6-flowered, with ovate bracts. — Flow. January to March.

M. ma. N. d. Often cultivated in gardens, rarely subspontaneous.

Also known from Europe and most parts of the Mediterranean region.

472. (9.) **Salvia** Linn.

Herbs, or, in some species, shrubs, with the flowers usually in whorls of 6 or more, forming terminal racemes or spikes, the floral leaves all or most of them reduced to mere bracts. Calyx 2-lipped, the upper lip entire or with 3 small teeth, the lower one 2-cleft. Corolla with the upper lip erect, concave, or arched; the lower ones spreading, 3-lobed; the middle lobe often notched or divided. Stamens really 2, although easily mistaken for 4, for the anthers have a long slender connective, having the appearance of a filament, fastened by the centre to the very short real filament, and bearing at one end a perfect anther-cell under the upper lip of the corolla, and at the other end a small cell, almost always empty, and usually much deformed.

A very large genus, widely spread over the temperate and warmer regions of the globe, although within the tropics the majority of species are mountain plants. The structure of the stamens readily distinguishes them from all other Labiatae.

A. Anterior part of the connective ending in an empty cell or bulbous callosity.
  I. Corolla-tube hairy ringed within. Upper lip nearly straight. Anterior anther-cell empty . 1. **S. bracteata.**
  II. Corolla-tube naked within. Anterior part of the connective ending in a bulbous tip.
    a) Calyx campanulate, upper lip convex, 3-toothed. Upper whorles often abortive.
      1. Corolla-tube gradually dilating into a throat, naked within.
        α) Floral leaves pale-green . . . . . 2. **S. spinosa.**
        β) Floral leaves coloured . . . . . 3. **S. palaestina.**
      2. Corolla-tube ending abruptly in a pouched throat, with a penicillate scale within . . . . . 4. **S. brachycalyx.**
    b) Calyx obovate, upper lip concave, 2-grooved, with 3, shorth, connivent teeth
      1. Corolla blue . . . . . 5. **S. Verbenaca.**
      2. Corolla reddish . . . . . 6. **S. lanigera.**
    c) Calyx ovate to tubular-campanulate, upper lip 3-toothed . . . . . 7. **S. aegyptiaca.**
B. Anterior part of the connective tubulate, destitute of a cell or callosity . . . . . 8. **S. judaica.**

1154. (1.) **Salvia bracteata** Russ. Alepp. II (1794), p. 242. — Boiss. Flor. Or. IV, p. 603. — A perennial herb, 50—60 cm high or sometimes somewhat more, glandular-hirsute, viscid, many-stemmed from a shrubby rootstock; stems ascending, paniculate-branched. Leaves petioled, leaflets crenate, the lateral ones usually one sometimes two pairs, those of lowest leaves small, round to ovate, of intermediate 2—4 cm long, ovate to oblong, the terminal one larger, the upper stem-leaves subtending the branches, oblong in outline, undivided or more or less irregularly lobed or incised-dentate. Floral leaves sessile, persistent, boat-shaped, membranous and pinkish or purplish at the base, herbaceous at the tip, acuminate, somewhat recurved, including the whorls and longer than the calyx; whorls 8—6-flowered, remote; calyx sessile, hispid-viscid, 1—1,5 cm long, the upper lip longer, oblong, undivided or slightly 3-toothed, the lower one with ovate, acute teeth; corolla purplish, twice as long as the calyx. — Flow. March to April.

M. ma. Mariut (Muschler).

Also known from Arabia Petraea and Syria.

1155. (2.) **Salvia spinosa** L. Mant. (1771), p. 511. — Boiss. Flor. Or. IV, p. 613. — Benth. in DC. Prodrom. XII, p. 281. — Jacq. Ic. rar. I, tab. 7. — A perennial plant, 30—40 cm high, sometimes somewhat more, viscid-pubescent, especially above; stem ending in a pyramidal panicle, 20—30 cm broad. Leaves appressed-pubescent, canescent to pale green, ovate, 8—20 cm long, subcordate or rounded at base, eroded-dentate, occasionally somewhat lobed, the lower long-petioled, the upper somewhat clasping. Floral leaves pale green, round-ovate, cordate-clasping at base, acuminate, rather shorter than calyx; whorls 6—2-flowered; calyx 1,2 cm long, tubular, growing in fruit, bilabiate, with triangular-lanceolate, prickly-aristate teeth; corolla white, once and a half as long as the calyx. — Flow. March to April.

M. ma. Between Mariut and Sidi Gâber; Alexandria-West and -East. — **M. p.** El-'Arîsh.

Local name: tha'alaba (Ascherson); ta'êlbe (Schweinfurth, Muschler); na'eyme; shadjeret-el-gemâl (Ascherson).

Also known from Tripolitania, Arabia Petraea, Syria, Mesopotania and Persia.

1156. (3.) **Salvia palaestina** Benth. Labiat. (1832—1836), p. 718. — Boiss. Flor. Or. IV, p. 614. — Salvia sinaica Delile ex Boiss. Flor. Or. IV, p. 615. — Salvia Sieberi Presl Bot. Bemerk., p. 100. — A perennial plant, 30—80 cm high, or sometimes somewhat more, strigose; stem ending in a panicle 20—40 cm broad. Leaves rugose, greenish to canescent, the lower long-petioled, oblong, 10 to 20 cm long, often pinnatisect or lyrate at the base of the blade, the lateral segments small, confluent, and the terminal 8—10 cm long, 2—3 cm broad, crenate, often lobed or incised. Floral leaves membranous, often coloured, sparingly papillose-pubescent, orbicular to ovate, cuspidate, shorter than the calyx; calyx sparingly papillose, 1,5 cm long, growing in fruit, bilabiate, with lanceolate prickly-mucronate teeth; corolla white, twice to thrice as long as the calyx, the upper liperather straight. — Flow. February to March.

M. p. Rosetta, in sandy places, rare (Muschler). — **D. a. sept.** Galâla.

Local name: kharna.

Also known from Palestine and Syria.

1157. (4.) **Salvia brachycalyx** Boiss. Flor. Orient. IV (1879), p. 625. — Salvia indica L. partly. — Jacq. Ic. Vindob. I, tab. 78. — Bot. Mag., tab. 395. — A perennial robust plant, 80 cm to 1,5 m high, or sometimes somewhat more, stem sparingly pubescent, leafy

below, naked above the middle, ending in a panicle often 50 cm long and 40 cm broad. Lower leaves membranous, more or less papillose-pubescent, ovate, 6—35 cm long, truncate or cordate at the base, eroded-dentate or sinuate-lobed; stem-leaves sessile, triangular-ovate, truncate at the base. Floral leaves triangular-ovate, abruptly short-acuminate, the lower longer than the calyx, the upper broader than long, shorter than the calyx; whorls 6—4-flowered, distant; calyx viscid-pubescent, campanulate, 9 mm long in flower, very slightly enlarged in fruit, almost truncate, teeth very short and broad, spiny-mucronulate; corolla bluish, four times as long as the calyx; with falcate upper and broad lower lips, and long-exserted stamens and style. — Flow. March.

M. ma. Ramle, in sandy places (Muschler).

Also known from Syria and Mesopotamia.

1158. (5.) **Salvia Verbenaca** L. Spec. Plant. I (1753), p. 35. — var. **vernalis** Boiss. Voy. Bot. Esp. (1845), p. 484. — Flor. Or. IV, p. 629. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 824. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 244. — Rchbch. Icon. XVIII, tab. 703. — Salvia Sibthorpii Heldr. Flor. Pelop., no. 37 not of Flor. Graec. — Salvia Spielmanniana MB. Flor. Taur. Cauc. I, p. 21. — Salvia disermas Smith Prodrom. not of Linn. — Salvia laciniata Willd. Enum. Plant. Hort. Berol. II, p. 613. — A perennial plant, 30—50 cm high, or more, pubescent, villous above; stems ascending, simple or sparingly branched. Leaves ovate to oblong, 3—10 cm long, crenate, wrinkled, glabrescent, rounded or cordate at the base, undivided, lobed, or pinnatifid, the lowest ones petioled, 10—20 cm long, the upper one sessile. Floral leaves minute, round-cordate, acuminate, at length reflexed; whorls 6—4-flowered, remote; calyx 5—6 mm long in flower, 8 mm and nodding in fruit, often coloured, the upper lip half-orbicular; corolla blue, 1—1,2 cm long, upper lip somewhat incurved. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Mariut; Alexandria-West and -East.

Also known from all the other parts of the Mediterranean region.

1159. (6.) **Salvia lanigera** Poir. Encyclop. Supplem. V (1817), p. 49. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 825. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 244. — Aschers. Flor. Rhinocol., p. 802 no. 199. — Salvia controversa Ten. Syll. Flor. Neap., p. 18. — Salvia clandestina L. in herb. not in Spec. Plant. — Sibth. Flor. Graec., tab. 24. — Salvia rugosissina Zucc. Acad. Monac. III, p. 244 tab. VII. — A perennial plant, 20—35 cm high, or sometimes some-

what more, appressed-canescent, and more or less hispid with longer hairs; stems numerous, simple or branching from near the base. Leaves oblong in outline, pinnatisect into linear, bullate-wrinkled, obtuse, crenulate lobes, set at right angles to the axis, with revolute margins. Floral leaves ovate-orbicular, acute; whorls 6—8-flowered, rather remote or approximated; calyx fleecy, 5 mm long in flower, 8 mm in fruit; corolla reddish, twice to thrice as long as the calyx, upper lip somewhat falcate. — Flow. February to April.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Mariut; Montaza; Alexandria-West and -East; Macdara, Abukîr. — **M. p.** Damietta; Rosetta; el-ʿArîsh. — **D. a. sept.** Ma'sara; Helwân, in the desert, Wady-Dugla; Suez; Galala.

Local name: meryamîye (Forsk.); 'areym (Schweinfurth).

Also known from Algeria, Tunisia, Tripolitania, Spain, Italy, Arabia, Syria and Mesopotamia.

1160. (7.) **Salvia aegyptiaca** L. Spec. Plant. I (1783), p. 33. — Boiss. Flor. Or. IV, p. 631. — Jacq. Hort. Vindob. I, tab. 108. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 121 no. 826. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers. Flor. Rhinocol., p. 802 no. 200. — Thymus hirtus Viv. Flor. Libyc., p. 30 tab. 44. — Thymus syrticus Spreng. Syst. II, p. 697. — An undershrub 1—2 m high, canescent-puberulent, intricately branched, branches stiff, almost spinescent. Leaves few, oblong-linear to linear, tapering to a short petiole, 1—2 cm long, 2—3 mm broad, the upper ones sessile, all bullate-crenate, revolute-margined, obtuse. Floral leaves minute, persistent, ovate, acute; whorls 2—4-flowered; calyx pedicelled, nodding, 3 mm long, oblong, pubescent to hirsute, the upper lip shorter with a concave, 2-grooved back, and a somewhat incurved tip furnished with 3, minute, connivent teeth, the teeth of the lower lip triangular-lanceolate, subulate at the tip; corolla glabrous, scarcely once and a half as long as the calyx. — Flow. March to April.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** El-Grâdy. — **D. i.** Sâlihîga; Ismailia. — **D. a. sept.** Nefîsh; Serapeum; Suez; all the Wadies of the Arabian desert. — **D. a. mer.** Qoseyr.

Local name: ra'al; shegeret-el-ghazâl (Forsk., Del.).

Also known from Morocco, Algeria, Tunisia, Tripolitania; Nubia, Arabia, Afghanistan and India.

var. **pumila** (Benth.) Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 121 no. 826. — Salvia deserti Aschers. and Schweinf. in Schweinf. Beitrag z. Flor. von Aethiop.,

p. 280 no. 2015. — Boiss. Flor. Or. IV, p. 632 partly not of Descne. — Salvia pumila Benth. Labiat., p. 726. — Jacquem. Voy., tab. 133. — A perennial plant, 10—15 cm high, rarely somewhat more, canescent, branches simple or sparingly branched. Leaves few, ovate to oblong, petioled, obtuse, 1—1,5 cm long, 2—3 mm broad, the upper ones sessile, all bullate-crenate, revolute-margined, obtuse. Floral leaves lenticular or elliptical; whorls 8—4-flowered; calyx subsessile, hirsute-fleecy, ovate, 2 mm long, lips about equal; corolla glabrous, scarcely once and a half as long as the calyx. — Flow. March to April.

D. a. sept. Suez; Bîr-Suez; foot of the Gebel Ataqa. — **D. a. mer.** Kene; Wady Etît; Wady Lekhuma.

Local name: geheysh (Schweinfurth).

Also known from Arabia Petraea, Palestine and Syria.

1161. (8.) **Salvia judaica** Boiss. Diagnos. Plant. Orient., Ser. I fasc. XII (1849) p. 61. — Flor. Orient. IV, p. 635. — A perennial plant, 60 cm to 1 m high or somewhat more, papillose-hairy; stems stiffly panicled above. Leaves bullate-wrinkled, petioled, crenate or dentate-lobed; the radical and sometimes the lower stem-leaves lyrate-pinnatipartite with ovate, abtuse leaflets, the lateral 1—2 pairs, sometimes confluent, the terminal one much larger, scarcely cordate; the cauline leaves sessile, cordate-ovate to oblong. Whorls 12—6-flowered, distant; pedicels shorter than the calyx; calyx red, 7 mm long, scabrous, the upper lip a little tho longer, with 3, triangular, mucronate, the lower with 2, subulate teeth; corolla violet, once and a half as long as the calyx, with included tube. — Flow. March.

M. ma. Sidi-Gâber (Muschler).

Also known from Arabia Petraea and Palestine.

473. (10.) **Rosmarinus** Linn.

Calyx campanulate, bilabiate, upper lip concave, minutely 3-dentate, lower lip bifid, throat naked. Corolla-tube short-exserted, naked within, dilated at throat, upper lip erect, narrow, bifid, lower spreading, 3-lobed, the middle lobe largest, concave, pendulous. Fertile stamens 2, anterior, ascending under the upper lip, axserted, recurved, filaments continuous with connective, furnished below middle with a slender, short, reflexed tooth; anthers coherent in a linear cell fixed by its back to the tip of the connective. Style bifid. Nutlets ovate, smooth. — Shrubs with blue flowers in axillary racemes.

A small genus, widely distributed throughout Southern Europe and the Mediterranean region.

1162. **Rosmarinus officinalis** L. Spec. Plant. I (1753), p. 33. — Boiss. Flor. Or. IV, p. 636. — Lam. Illustr. tab. 19. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — A shrubby plant, 1—1,20 cm high or sometimes somewhat more, branches erect, densely leafy. Leaves persistent, coriaceous, linear, 1—2,5 cm long, revolute-margined, olive-green at upper surface, canescent at lower. Flowers sessile, opposite, arranged in axillary racemes 2—3 cm long; bracts minute, oblong to ovate, caducous; calyx pubescent-canescent: corolla twice and a half as long as the calyx. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. D. a. mer. Cultivated everywhere in gardens and often subspontaneous.

Local name: kelîl (Forsk.); generally: hasalbân.

Also known from all the other parts of the Mediterranean region.

474. (11.) **Marrubium** Tourn.

Calyx tubular, 5—10-nerved, teeth 5—10, equal, short, subspinescent. Corolla short, tube naked or annulate within, upper lip erect, lower spreading, middle lobe largest. Stamens 4, included; anthers glandular, cells diverging. Style-lobes short, obtuse. Nutlets obtuse. — Perennial tomentose or woolly herbs. Whorls axillary. Flowers small.

Natives of the temperate and warm regions of the Old World.

A. Calyx-teeth five . . . . . **M. Alysson.**
B. Calyx-teeth from 10 to 15 . . . . . **M. vulgare.**

1163. (1.) **Marrubium Alysson** L. Spec. Plant. I (1753) p. 815. — Boiss. Flor. Or. IV, p. 700. — Clus. Hist. Icon. 35. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 827. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 667 no. 145. — Marrubium plicatum Forsk. Flor. aeg.-arab., p. 213. — An annual plant, 20—50 cm high, rarely somewhat more. — Stems woolly, thick, ascending, low, simple or sparingly branched. Leaves grey, petioled, cuneate-fan-shaped, crenate-lobed toward tip, the floral ones smaller, deflexed, longer than the whorls. Whorls 10—15-flowered, separate, loosely spiked; bracts obsolete; calyx appressed-fleecy, teeth spiny, at length stellate-spreading, throat at length closed by wool; corolla dark blue, with minute limb. — Flow. December to April.

M. ma. Marmarica: Matruqa; Mariut; Behig; Montaza; Alexandria-West and -East. — **M. p.** Rosetta; El-'Arîsh. — **D. l.** Between Alexandria and the Oasis Siwa. — **Di.** Wady-el-'Arîsh.

Local name: frâsiyûn (Forsk., Delile).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Italy, Arabia Petraea, Palestine and Syria.

1164. (2.) **Marrubium vulgare** L. Spec. Plant. I (1753), p. 816. — Boiss. Flor. Or. IV, p. 703. — Rchbch. Ic. XVIII, tab. 23 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 246. — A perennial plant, 40—60 cm high, or sometimes somewhat more; stems stout, white-woolly, ascending, simple or spraringly branched. Leaves crenate, soft-villous, greyish above, whitish below, orbicular to ovate-orbicular, 10—30 cm long, the lower petioled, often cordate. Whorls dense, globular, distant, rather shorter than the cuneate-oblong, floral leaves; bracts subulate, hooked at the apex; calyx-teeth 10, spreading, hooked at the apex, the alternate ones shorter, the longest one third as long as the 4 mm long tube; corolla white, with minute limb. — Flow. March to April.

M. ma. Recently introduced; Alexandria-West and -East; Abukîr.

Also known from Morocco, Algeria, Tunisia, Europe, Caucasia, Asia Minor, Syria, Palestine, Mesopotamia and Persia.

475. (12.) **Stachys** Linn.

Calyx-tube funnel-shaped, 5—10-ribbed; teeth 5, subequal. Corolla-tube included or exserted; limb bilabiate; upper lip ascending, oblong, concave; lower deflexed, 3-lobed. Stamens 4, didynamous, arcuate; lowest pair the longest; anther-cells 2, parallel or divaricate. Disk usually equal. Style bifid at the apex. Nutlets ovoid or oblong, obtuse. — Annual or perennial herbs or low shrubs. Leaves sessile or petioled, entire or toothed. Whorls axillary or crowded into terminal racemose panicles. Flowers small or medium-sized, various in colour.

Species about 200, cosmopolitan, concentrated in the Temperate regions of both hemispheres.

1165. **Stachys aegyptiaca** Pers. Syn. II (1807), p. 124. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 828. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Stachys affinis Fresen. Mus. Senckenberg. II, p. 91. — Stachys orientalis Forsk. Flor. aeg.-arab., p. 68 not of Linn. — Stachys palaestina Vahl Symb. II, p. 64 not of Linn. — Stachys pauciflora Benth. Lab., p. 560. — A perennial plant, 20—60 cm high, or sometimes somewhat more, grey-woolly, much branched; branches slender, flexuous. Leaves subpetioled, narrowed at the base, oblong to oblong-linear, 1—3,5 cm long, obtuse, reticulate, muticous.

Whorls 2-flowered, rather near, racemed; calyx 8 mm long, short-pedicelled, tubular-campanulate, teeth triangular, acute, muticous, one third as long as the tube; corolla pubescent, flesh-coloured, with included tube. — Flow. March to April.

D. a. sept. Common in the Wadies on calcarious ground. Often a foddefor donkeys.

Local name: roghat (Forsk.); roghl (Wilkinson); qartan (Schweinfurth).

Also known from Arabia Petraea, Palestine and Syria.

476. (13.) **Lamium** Linn.

Calyx tubular or campanulate, 5-toothed, with equal or oblique mouth. Corolla-tube usually exserted, naked or hairy within, limb bilabiate, the upper lip arched or helmet-shaped, entire, retuse, or bifid; the throat dilated; the lateral lobes of the lower lip truncate or angled, sometimes appendaged, the median one somewhat stipitate, notched or bilobed or entire. Stamens 4, parallel under the upper lip, anthers diverging. Style equally bifid. Nutlets acutely triquetrous, truncate at tip. — Annual or perennial herbs.

A genus of several species, chiefly south European or central Asiatic, generally distinguished either by the long, arched upper lip, or by the smallness of the lateral lobes of the lower lip of the corolla.

1166. **Lamium amplexicaule** L. Spec. Plant. I (1753). p. 809. — Boiss. Flor. Or. IV, p. 760. — Rchbch. Ic. XVIII, tab. 3 fig. II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 829. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Ascherson-Schweinf. Primit. Flor. Marmaric., p. 622 no. 247. — A low, decumbent, much branched annual, a few cm, or, when very luxuriant, near 35 cm long. Lower leaves small, orbicular, on long stalks; the floral one closely sessile, broadly orbicular, and deeply crenate or cut. The flowers form 1, 2, or 3 compact whorls. Calyx softly hairy, with short teeth. Corolla about 1—1,5 cm long, of a purplish red, with a slender tube; the lateral teeth of the lower lip scarcely perceptible. — Flow. February to April.

M. ma. Marmarica; Matruqa; Dakalla; Ras-el-Kenâ'is; Mariut; Alexandria-West and -East; Mandara. — **N. d. N. v.** Common in gardens, cultivated and naturalized. — **O.** Dakhel.

Everywhere in the Mediterranean region and Europe.

477. (14.) **Ballote** Tourn.

Calyx-tube funnel-shaped, 10-ribbed; limb usually with 5—10 teeth rarely more, or entire. Corolla-tube with a ring of hairs inside;

limb bilabiate; upper lip ascending, oblong, concave; lower 3-lobed. Stamens 4, didynamous, arcuate; lower pair the longest; anther-cells 2, divaricate. Disk entire or lobed. Style bifid at the apex. Nutlet ovoid-oblong, smooth. — Perennial herbs or undershrubs. Leaves petioled, ovate, crenate. Whorls of flowers produced from the axils of developed leaves; bracteoles foliaceous or subulate.

Species 25, concentrated in the Mediterranean and Oriental regions, one South African.

A. Calyx white-woolly . . . . . 1. **B. damascena.**
B. Calyx glandular-pubescent . . . . . 2. **B. undulata.**

1167. (1.) **Ballote damascena** Boiss. Diagnos. Plant. Orient., Ser. I fasc. XII (1849) p. 87. — Flor. Or. IV, p. 772. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 830. — A perennial plant, 30 to 40 cm high or somewhat more; stems numerous, erect, flexuous, densely white, appressed-cocoony. Leaves few, orbicular, 1—1,5 cm broad, short petioled, grey-woolly, crisp, wrinkled, crenate. Whorls 2—3, quite remote, many-flowered, as large as a small walnut; bracts oblong-spathulate; calyx white-woolly, limb 5—7 mm broad, with 10—12, spinoluse, crenae at the margin. — Flow. March to April.

D. a. sept. Galala; Suez, rare.

Local name: asaghân (Schweinfurth).

Also known from Arabia Petraea, Palestine and Syria.

1168. (2.) **Ballote undulata** (Fresen.) Benth. Labiat. (1832 to 1836), p. 595. — Boiss. Flor. Or. IV, p. 773. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770 no. 1307. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Marrubium undulatum Fresen. Mus. Senckenberg. II, p. 92. — Marrubium crispum Sieb. in Herb. Berol. — A perennial herb, 30—60 cm high, or sometimes somewhat more; stems numerous, glandular and hirsute. Leaves villous on both sides, orbicular, 1,5—3 cm broad, crisp, wrinkled, crenate. Whorls numerous, many-flowered, distinct; bracts linear-spathulate; calyx glandular-pubescent, limb 8 mm to 1,3 cm broad, with undulate, muticous, obsoletely crenate margin. — Flow. March to April.

D. i. Desert-et-Tîh. — **D. a. sept.** Upper Wady Atâqa near Suez.

Also known from Arabia Petraea, Palestine, Syria and Mesopotamia.

478. (15.) **Leucas** R. Br.

Calyx narrowly funnel-shaped or oblong, equal or oblique at the throat; ribs and teeth 8—10. Corolla-tube as long as the calyx, naked or furnished with a ring of hairs inside; upper lip arcuate,

convex; lower about as long, 3-lobed. Stamens 4, didynamous; anther-cells divaricate, finally confluent. Disk equal or obliquely produced. Style with a very short upper lobe. Nucules ovoid-triquetrous. — Annual or perennial herbs or undershrubs. Leaves entire or toothed; upper floral leaves like the others or reduced. Whorls few or many-flowered, usually remote. Corolla pallid; upper lip densely clothed with white hairs.

Species about 100, spread through the tropical regions of the Old World, one also American.

1169. **Leucas inflata** Benth. Labiat. (1832—1836), p. 744. — Boiss. Flor. Or. IV, p. 778. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 832. — A low shrub, 20—30 cm high, or sometimes, especially in shady localities, somewhat more, woolly-canescent. Lower leaves short-petioled, obovate-cuneate, obtuse, 3—4-toothed at tip; the floral ones sessile, cordate-orbicular, as long as the flowers or longer. Whorls 6—10-flowered, numerous, distinct; bracts obsolete; calyx white-hirsute, ovate-inflated, with contracted mouth, and triangular-lanceolate, acuminate teeth. — Flow. March to May.

D. a. sept. Suez.

Also known from Sinai.

479. (16.) **Phlomis** Tourn.

Calyx tubular, striate, often sulcate, with equal, truncate mouth, and acute, obtuse, or retuse teeth. Corolla-tube included, hairy ringed within, with compressed, arched hood, and spreading, trifid lower lip. Stamens ascending under hood, the upper filaments often spurred at base. Anthers in pairs, with divaricating, confluent cells. Nutlets 3-angled. — Herbs or shrubs, generally woolly or fleecy.

A large genus widely distributed in the Mediterranean region and South Europe.

1170. **Phlomis floccosa** Don. in Bot. Reg. XV (1829), tab. 1300. — Boiss. Flor. Or. IV, p. 786. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 833. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 249. — Aschers. Flor. Rhinocol., p. 802 no. 203. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Phlomis Samia var. bicolor Viv. Flor. Lilyc., p. 30 tab. 15. — Phlomis bicolor Bentham Labiat., p. 629. — A perennial plant, 60 cm to 1 m high, sometimes somewhat more, lanate-wooly, flocculent. Leaves oblong, 5—10 cm long, 2—3 cm broad, the lower one truncate or subcordate at the base, short-petioled. Whorls many flowered, as large as a walnut or larger, distant; bracts

oblong to linear, obtuse, somewhat shorter than the calyces; calyx 1,5 cm long in flower, truncate, teeth 5, short-triangular-subulate; nutlets glabrous. — Flow. March to April.

M. ma. Marmarica: Matruqa; Ras-el-Kenâ'is; Mariut; Montaza; Alexandria-West and -East; Abukîr.

Local name: zeheyra (Ascherson).

Also known from Tunisia, Tripolitania, Cyrenaica, Western Marmarica, Arabia Petraea, Palestine and Syria.

480. (17.) **Leonotis** Pers.

Calyx-tube funnel-shaped, arcuate, 8—10-ribbed; throat oblique; teeth 8—10, more or less unequal, the upper the largest. Corolla-tube as long as the calyx; limb bilabiate; upper lip elongated, concave, hairy outside; lower short, deflexed, with 3 subequal lobes. Stamens 4, didynamous, arcuate; lower pair longest; anthers 2-celled; cells divaricate, subconfluent. Disk equal. Style shortly bifid. Nutlets ovoid-triquetrous, obtuse or truncate, glabrous. — Coarse, tall annual or perennial herbs. Leaves petioled, ovate, crenate. Whorls very dense, axillary. Flowers white or yellow.

Species, about 12, several in South Africa, one now cosmopolitan in the Tropical zone.

1171. **Leonotis Leonurus** R. Br. in Ait. Hort. Kew., ed. II Vol. III (1811) p. 410. — Benth. in DC. Prodrom. XII, p. 536. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122. — A branched perennial herb, with densely hairy stems. Leaves sessile, oblong-lanceolate or lanceolate, 6—8 cm long, 1—2 cm broad at the middle, obscurely crenate, narrowed to the base, pubescent on both surfaces. Whorls few, distant, subtended by large leaves; bracts linear-subulate, pungent, shorter than the calyx. Calyx 1 cm long, pilose; tube long; teeth minute, deltoid. Corolla reddish-yellow, 36—45 mm long, densely pilose; tube rather longer than the calyx; upper lip large; lower small. Stamens not exserted. — Flow. January to March.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Often in gardens as an ornamental plant, rarely naturalized.

Also known from Tropical and South Africa.

481. (18.) **Otostegia** Benth.

Calyx-tube funnel-shaped, 10-ribbed; limb scarious, bilabiate; upper lip small, ovate; lower one much broader, orbicular-cuneate, subentire or crenate. Corolla-tube included, with a ring of hairs inside; limb bilabiate; upper lip arcuate, densely hairy outside; lower deflexed,

3-lobed. Stamens 4, didynamous, arcuate; lower pair the longest; anther-cells divaricate. Disk equal. Style bifid at the apex; nucules ovoid, obtuse. — Shrubs or undershrubs. Leaves sessile or petioled, entire or crenate. Flowers few or many in laxly disposed leafy whorls, bracts herbaceous or spinous.

Species about 10, the others inhabiting Arabia, North India and the Orient.

1172. **Otostegia microphylla** (Desr.) Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 122 no. 831. — Otostegia Schimpori Boiss. Flor. Or. IV. p. 776. — Molucella microphylle Delila Fragm., p. 10 fig. 2. — Ballote microphylla Benth. Labiat., p. 596. — Marrubium microphyllum Desr. in Lam. Dict. XIII, p. 720. — A shrubby plant, 30—50 cm high, or sometimes somewhat now; branches elongated, stiff, minutely velvety. Leaves densely woolly, short-petioled, ovate, 1 cm long, crenate, wrinkled at under surface, the floral shorter than the whorls. Whorls 2—4-flowered; bracts few, subulate, short; calyx tomentellous, limb oblique, reticulated, obsoletely 10-crenulate, the lower limb. 7 mm long, twice as long as the upper one, nearly as long as the tube. — Flow. March.

D. a. sept. Gebel Umm Khasheyba.

Local name: ghassa (Schweinfurth).

Also known from Arabia Petraea.

482. (19.) Eremostachys.

Calyx tubular-campanulate or funnel-shaped, the limb sometimes expanded, membranous, teeth 5, broad, spiny. Corolla-tube included, hood flattened, lower lip trifid. Stamens ascending under the hood, the upper filaments appendaged at base; anthers in pairs, with divergent, confluent cells. Nutlets hairy at apex. — Perennial herbs, differing from Phlomis by aspect rather than botanical characters.

A small genus of only a few species in the Mediterranean region and Asia.

1173. **Eremostachys laciniata** (L.) Bunge in Ledeb. Flor. Altaic. II, p. 416. — Ic. Bos. Reg., tab. 52. — Boiss. Flor. Or. IV, p. 793. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770 no. 1308. — Sickenberg. Contrib. Flor. d'Eg., p. 267. — Aschers. Flor. Rhinocol., p. 802 no. 202. — Eremostachys macrocheila Jaub. and Spach Illustr. Plant. Or. V, tab. 513. — A perennial herb, 30 cm to 1 m high, or more, stem thick, ending in a dense, fleecy spike, 30 cm or more long, 6—8 cm broad, interrupted at the base. Leaves green, hairy or somewhat fleecy, the radical ovate 60—40 cm long, 15 to

25 cm broad, petioled, bipinnatisect, segments oblong-lanceolate to linear, incised and dentate; cauline leaves smaller, the upper ones sessile; floral leaves ovate-oblong, incised, the upper ones shorter than the flowers. Whorls numerous, many flowered; outer bracts linear-lanceolate; calyx fleecy, truncate, teeth broad, short, ending in very-short, straight prickly points; corolla yellowish white or purplish. — Flow. March to April.

M. p. El-ʿArîsh; Faqîra.

Also known from Arabia Petraea, Palestine and Syria.

483. (20.) **Prasium** Linn.

Calyx campanulate, 10-nerved, irregularly 2-lipped, the upper lip short-trifid, the lower one deeply 2-parted. Corolla-tube included. with a scaly-hairy ring within, the lips of equal length, the upper ovate, entire, the lower ones trifid, the middle lobe larger, entire. Stamens ascending under the hood, the anther-cells divergent. Style equally bifid. Nutlets somewhat drupaceous. — Shrubs.

A small genus widely distributed in the Mediterranean region and Europe.

1174. **Prasium maius** L. Spec. Plant. I (1753), p. 838. — Viv. Flor. Libyc., p. 31. — Boiss. Flor. Or. IV, p. 798. — Rchbch. Ic. XVIII, tab. 2 fig. 1. — Prasium minus Viv. Flor. Libyc., p. 31. — A perennial plant, 50 cm to 1,5 m high or sometimes especially in shady places somewhat more, glabrous or sparingly hispidulous above. Leaves ovate, 1,5—3 cm long, truncate or cordate at the base, petioled, crenate or serrate, the floral ones narrower, less dentate. Whorls 2-flowered, more or less distant; calyx 1,2 cm long in flower, short pedicelled, green, glabrous, with ovate, aristate teeth, the lower two longer than the tube, the upper three irregularly connate; corolla white. — Flow. March to April.

M. ma. Old quarries N. N. W. of Behig; Mariut.

Also known from the other parts of the Mediterranean region.

484. (21.) **Teucrium** Tourn.

Calyx-teeth 5, equal or the upper one more frequently larger than the others. Corolla-tube short, the 4 upper lobes nearly equal or the 2 uppermost larger, all 4 lateral, erect or declinate, the middle lower lobe larger, obovate or oblong, spreading and usually concave. Stamens 4, in pairs, exserted from between the upper corolla-lobes and arched over the corolla. Anthers reniform, 1-celled by confluence of the cells. Style shortly bifid at the end. Nuts laterally attached to near or to above the middle, reticulate-rugose

or rarely nearly smooth. — Herbs, undershrubs or shrubs, showing considerable diversity in habit and inflorescence. Leaves entire, toothed or variously divided.

The genus is widely distributed over the temperate regions of the globe, chiefly in the northern hemisphere, with a few tropical chiefly mountain species.

A. Leaves cuneate-obovate . . . . . 1. **T. leucocladum.**
B. Leaves oblong to linear.
I. Corolla as long as or a little longer than the calyx . . . . . 2. **T. Polium.**
II. Corolla $1^1/_2$-times longer than the calyx . . 2. **T. pilosum.**

1175. (1.) **Teucrium leucocladum** Boiss. Diagnos. Plant. Or. IV (1849), p. 44. — Flor. Or. IV, p. 820. — Aschers-Schweinf. Prim. Flor. Marmaric., p. 662 no. 253. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 835. — Aschers. Flor. Rhinocol., p. 802 no. 204. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — A low shrub, 20—30 cm high, sometimes somewhat more, appressed-woolly-canescent; the old branches woody, tortuous, the new white, 4—7 cm long, forked, at length subspinescent. Leaves cuneate-obovate, the largest 9 cm long, 6 cm broad at the tip, obtusely and sparingly crenate, the floral one elliptical, entire. Heads scarcely larger than a pea, nearly spherical, few-flowered, short-peduncled; bracts elliptical, obtuse; calyx 2,5 mm long, teeth ovate, obtuse; corolla white, once-and-a-half as long as the calyx. — Flow. January to March.

M. ma. Mariut. — **D. i.** Desert-el-Tîh; Gebel Ekhfên; El-Kharuba. — **D. a. sept.** Wady Abu Marwa; Gebel Dukhân.

Local name: mustiân; dja'ade.

Also known from Arabia Petraea, Syria and Mesopotamia.

1176. (2.) **Teucrium Polium** L. Spec. Plant. I (1753), p. 792. — Boiss. Flor. Or. IV, p. 821. — Rchbch. Ic. XVIII, tab. 37 fig. IV to VII. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 836. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 253. — Aschers. Flor. Rhinocol., p. 802 no. 204. — Benth. in DC. Prodrom. XII, p. 591. — A perennial herb, densely branched from the crown of the root, with wiry stems densely clothed with white tomentum. Leaves crowded, sessile, small, oblong, with crispate-crenate revolute edges. Flowers aggregated in dense globose terminal heads; bracts small. Calyx densely villous, 8 mm long; teeth small, ovate. Corolla twice as long as the calyx. — Flow. February to March.

M. ma. Marmarica; Matruqa; Ras-el-Kenâ'is; Mariut; Alexandria-West to Abukîr. — **D. i.** Gebel Ekhfên.

Local name: mustiân.

Also known from the other parts of the Mediterranean region to Persia.

1177. (3.) **Teucrium pilosum** Aschers.-Schweinf. Illustr. Flor. d'Eg. (1887), p. 189. — Teucrium sinaicum Boiss. Flor. Or. IV, p. 822. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 837. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 781. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Teucrium polium var. pilosum Decsne Flor. sinaic., p. 12. — A low shrub, 20—40 cm high, rarely somewhat more, viscid, grey-hirsute; trunks woody below, 3 mm thick; branches erect, simple or sparingly branched. Leaves sessile, oblong to linear, convolute-margined, obtusely crenate or crenate-lobed. Heads terminal, globular, 1 cm in diameter, dense, solitary or 2—3 in a cluster; floral leaves shorter than the flowers; bracts linear, plumose; calyx glandular-punctate and hirsute, upper 3 teeth triangular-ovate, lower 2 longer and narrower; corolla white, once-and-a-half as long as the calyx; anthers short-exserted. — Flow. March to April.

D. a. sept. Southern Galala; Wady Tîn; Wady Azhar; Wady Umm-Ruthi.

Local name: dja'ade.

Also known from Sinai.

483. (22.) **Ajuga** Linn.

Calyx-teeth 5, equal. Corolla-tube short or long, the upper lip very short, truncate or emarginate, the lower lip long and spreading, the lateral lobes oblong, small, the middle lobe much larger, emarginate or bifid. Stamens 4, in pairs, exserted from the upper lip and arched over the corolla; anthers reniform, 1-celled by the confluence of the cells. Style shortly bifid at the end. Nuts laterally attached to near or above the middle, reticulate-rugose. — Herbs, usually diffuse or ascending or with spreading radical leaves and shortly erect stems. Flowers in false-whorls in the axils of floral leaves gradually smaller than the stem-leaves, the upper ones sometimes forming terminal leafy spikes. Bracts linear, or very small or none.

The genus is widely dispersed over the extratropical regions of the Old World, and chiefly in the mountain districts within the tropics, but wanting in America.

1178. **Ajuga Iva** Schrb. Plant. vert. unilab. (1773), p. 25. — Boiss. Flor. Or. IV, p. 802. — Rchbch. Ic. XVII, tab. 34 fig. III. —

Aschers.-Schweinf. Ill. Flor. d'Eg., p. 122 no. 834. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 662 no. 251. — Aschers. Flor. Rhinocol., p. 802 no. 203. — Teucrium Iva L. Spec. Plant. I, p. 787. — Moscharia asperifolia Forsk. Flor. aeg.-arab., p. XXIV and p. 518 (the cleistogamous form). — A perennial plant, 20—30 cm high or sometimes somewhat more, canescent or villous, branching from the base; branches prostrate or ascending, leafy. Leaves all alike, oblong-linear to linear, 2 to 3 cm long, 3—5 mm broad, revolute-margined, remotely 1—3-toothed on both sides or entire. Whorls 2—4-flowered, much shorter than the floral leaves, forming a dense raceme; calyx fleecy, teeth lanceolate, obtuse, shorter than the tube; corolla purplish-pink or yellow, thrice as long as the calyx. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Behig, old qarries; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** El-Grâdy. — **D. i.** Wady-el-ʿArîsh.

Local name: ja'âde (Schweinfurth).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Cyrenaica, Western Marmarica, Southern Europe and Arabia Petraea.

97. Solanaceae.

Flowers usually hermaphrodite, regular or slightly irregular. Calyx 4—5- (rarely 6—7-) toothed or lobed; lobes imbricate or valvate. Corolla campanulate, rotate, funnel-shaped or tubular, sometimes plicate; lobes 4—5 (rarely 6—7), induplicate-valvate or imbricate in bud, patent or more rarely erect. Stamens as many as the corolla-lobes, rarely fewer, inserted in the corolla-tube; filaments short or long; anthers distinct or conniving in a cone, cells parallel or diverging, dehiscing by terminal or oblique pores or longitudinal slits. Disk annular, entire or lobed or absent. Ovary superior, sessile or shortly stipitate, 2—5-celled; style terminal, filiform or clavate; stigma terminal, small or slightly expanded or bilamellate; ovules numerous, anatropous or amphitropous. Fruit an indehiscent berry, or a capsule dehiscing by valves or circumscissile. Seeds numerous, small; albumen fleshy; embryo often terete, near the outside of the albumen; cotyledons semiterete, rarely wider than the radicle. — Herbs, erect or climbing shrubs, more rarely trees, glabrous, pubescent or stellately tomentose, sometimes spiny. Leaves alternate, geminate or verticillate, entire or variously lobed. Inflorescence cymose, terminal, leaf-opposed or extra-axillary, sometimes appearing umbellate, racemose or fasciculate, or reduced to one flower.

Species about 1400, absent only from arctic and alpine regions, very abundant in tropical and extra-tropical South America.

Several Solanaceæ are cultivated for use or ornament, among which may be mentioned Lycium vulgare, often called Tea-plant, a straggling or climbing shrub, with small lilac flowers, often to be seen in cottage gardens, and established in hedges in some of the eastern counties of England, as in Central Europe; the Tobacco (Nicotiana), and the closely allied ornamental genera Petunia and Nierembergia, the Mandrake (Mandragora), the Winter-cherry (Physalis), the Cayenne Pepper (Capsicum), as well as the Cestrums and Fabianas of the gardens, which, although somewhat anomalous, belong to Solanaceae.

A. Ovary 4—5 ore more celled . . . . . 1. **Nicandra.**
B. Ovary 2-(rarely 3-)celled.
  I. Fruit baccate.
    a) Anthers usually dehiscing by pores . . . 2. **Solanum.**
    b) Anthers dehiscing by longitudinal slits.
      1. Calyx much enlarged in fruit.
        α) Flowers solitary . . . . . 3. **Physalis.**
        β) Flowers fascicled . . . . . 4. **Withania.**
      2. Calyx not or slightly enlarged in fruit.
        α) Corolla subrotate, valvate . . . . . 5. **Capsicum.**
        β) Corolla tubular or funnel-shaped, imbricate . . . . . 6. **Lycium.**
  II. Fruit capsular.
    a) Capsule 4-valved . . . . . 7. **Datura.**
    b) Capsule circumscissile . . . . . 8. **Hyoscyamus.**
    c) Capsule 2-valved . . . . . 9. **Nicotiana.**

484. (1.) **Nicandra** Adans.

Annual caulescent herbs, with deep green foliage. Leaves alternate; blades broad, sinuate-toothed or lobed. Flowers nodding, solitary in the axils. Calyx accrescent angled, inflated at maturity; sepals nearly distinct, cordate or sagittate at the base. Corolla blue or violet, plicate in the bud, campanulate slightly 5-lobed. Stamens 5, included; filaments adnate to the base of the corolla, filiform from a dilated and pubescent base; anthersacs opening lengthwise. Ovary 3—5-celled; stigma 3—5-lobed. Berry subglobose, rather dry, enclosed in the calyx.

A small genus with only a few species in Tropical South America.

1179. **Nicandra physaloides** (L.) Gaertn. De Fructib. I (1789), p. 237 tab. 131 fig. 2. — Boiss. Flor. Or. IV., p. 287. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 112 no. 756. — Sickenberg. Contrib.

Flor. d'Eg., p. 262. — Plants nearly glabrous. Stems 30—90 cm high or sometimes somewhat more, widely branching; leaf-blades ovate, oval or oblong, 5—15 cm long, angulately lobed or sinuate, narrowed into margined petioles; pedicels puberulent, recurving; calyx 1,5 cm long becoming 3,5 cm long, reticulated; sepals broadly ovate, narrowed into slender tips. Corolla blue or violet, 2,5 cm broad; limb nearly entire; berries 1,5—2 cm in diameter. — Flow. March to April.

M. ma. (?) „Stazione mediterranea" Figari-Bey: Stud. sull 'Egitto I, p. 225.

Also known from Tropical South Africa.

485. (2.) **Solanum** Linn.

Calyx with 5, rarely with 4 or more than 5 teeth or lobes. Corolla rotate or very broadly campanulate, with 5 or rarely 4 angles or lobes, folded in the bud. Filaments usually very short, rarely as long as the anthers; anthers oblong or linear, erect and connivent, either parallel or more frequently tapering upwards and forming a cone round the style, opening at the top in pores or transverse slits, rarely continued down the sides of the anthers, without any prominent connectivum between the cells. Fruit a berry, usually 2-celled rarely 4-celled (the cells divided by a spurious dissepiment) or in species or varieties several-celled. Seeds several, flattened, with a curved or spiral embryo surrounding a fleshy albumen. — Herbs shrubs or rarely low soft-wooded trees, either unarmed or with prickles scattered on the branches, on the principal veins of the leaves, especially on the upper surface and in some species also on the inflorescence and calyces, straight and slender in most Egyptian species, stout and recurved in some others. . Leaves alternate, but often in pairs, a smaller one being developed in the axil of the larger one, entire or irregularly toothed lobed or divided. Flowers normally in terminal centrifugal cymes; but, owing to the rapid development of the branch, the inflorescence becomes usually lateral and very often, by the abortion of one branch, reduced to a simple unilateral apparently centripetal raceme or to a single flower. Corolla usually blue purplish or white or in other species yellow, always tomentose outside in the species where the tomentum is stellate, but usually only on the part exposed in the bud, with the induplicate margins glabrous. Style frequently curved to one side, the stigma slightly dilated, entire or 2-lobed.

A very large genus, spread over the warmer and temperate regions of the globe, but most abundant in tropical America.

The distinction and determination of the numerous species of this genus (most extravagantly multiplied by Dunal in the 'Prodromus') is attended with peculiar difficulties, the chief characters being derived from the very variable ones of foliage, armature and indumentum.

A. *Inermes.* — Plants without spines.
  I. Flowers white . . . . . 1. **S. nigrum.**
  II. Flowers yellow . . . . . 2. **S. Lycopersicum.**

B. *Armatae.* — Plants bearing spines.
  I. Microphyllae. — Leaves rarely more than 3 cm long . . . . . 3. **S. macranthum.**
  II. Macrophyllae. — Leaves much exceeding 3 cm.
    a) Tomentum on stem floccose . . . . . 4. **S. insanum.**
    b) Tomentum on stem not floccose . . . 5. **S. Melongena.**

1180. (1.) **Solanum nigrum** L. Spec. Plant. I (1753), p. 266. — Boiss. Flor. Or. IV, p. 284. — Rchbch. Ic. XX, tab. X, fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 752. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 769. — Aschers. Flor. Rhinocol., p. 801 no. 188. — Sickenberg. Contrib. Flor. d'Eg., p. 260. — Dunal in DC. Prodrom. XIII, fas. I, p. 50. — Solanum villosum Mill. Gend. Dics. ed 8 no. 2. — Solanum retroflexum Dun. in DC. Prodrom XIII, fasc. I, p. 155. — An annual herb. Stem angular, more or less pubescent, up to 60 cm high. Leaves ovate, obovate or lanceolate, sinuate-dentate, more rarely entire, tapering downwards into the petiole, more or less pubescent with simple hairs on both surfaces, up to 8 by 5 cm petiole up to 2 cm long. Cymes umbellate, few-flowered; peduncle slender, 1 cm long; pedicels spreading in flower, pendulous in fruit. Calyx cup-shaped; lobes ovate, acute. Corolla rotate, white, 5 mm in diam.; lobes oblong-lanceolate, acute. Stamens equal; filaments short, cylindrical; anthers 2 mm long, oblong, obtuse, with 2 oblique pores near the apex. Style slightly longer than the stamens, pubescent below. Berry globose, glabrous, 6 mm in diam., black, more rarely red or yellow. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. N. o. mer. O. D. a. sept. D. a. mer. Everywhere common.

Local name: ʾaneb-ed-dîb.

A cosmopolit.

var. **induratum** Boiss. Flor. Or. IV (1879), p. 284. — Dun. in DC. Prodrom. XIII, fasc. I. p. 19. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 752. — Solanum nigrum var. suffruticosum Moris

Flor. Sard. III, p. 148. — Perennial; branches indurate at the base often elongate. — Flow. February to March.

M. ma. Alexandria.

Also known from Palestine and Persia.

var. **humile** (Bernh.) Aschers. in Flor. Prov. Brandenbg. I (1864), p. 452. — Boiss. Flor. Or. IV, p. 284. — Solanum humile Bernh. in Willd. Enum. Plant. Hort. Berol. I, p. 236. — Branches woer angulate; fruit yellow. — Flow. March.

M. ma. Alexandria. — **N. v.** Siut; Philae.

A cosmopolitan herb like the type.

1181. (2.) **Solanum Lycopersicum** L. Spec. Plant. I (1753), p. 186. — Lycopersicum esculentum Mill. Gard. Dict. VIII (1768), no. 2. — DC. Prodrom. XIII, fasc. I p. 26. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 111 no. 751. — Sickenberg. Contrib. Flor. d'Eg., p. 261. — Lycopersicum arasiforme Dun. in DC. Prodrom. XIII, fasc. 7, p. 28. — A fall pubescent herb. Leaves pinnate, pinnae toothed or sometimes lyrate. Cymes pedunculate, few flowered. Sepals 5—6, narrow, unaltered in fruit. Corolla rotate, tube very short; limb 5—6-fid, plaited in bud. Stamens 5—6, on the corolla-tube. Anthers connivent in an elongated cone, dehiscing by slits. Ovary 2—3-celled. Style cylindrical; stigma small, capitate. Seeds many, compressed, papillose; embryo peripheric. — Flow. October to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. D. a. mer. Cultivated everywhere abundantly often naturalized.

Local name: beydingân tômaten (Del.); khuta; badindjân-el-qûta; handûra (Ascherson); bandûra; generally: tômatûn.

An American plant.

1182. (3.) **Solanum macranthum** Dun. in DC. Prodrom. XIII, fasc. I (1852), p. 384. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 112. — A much-branched, very spiny herb. Branches terete, covered with stellate hairs; spines robust, straight, yellow, glabrous. Leaves oblong-oval, obtuse, subentire or sinuate-pandurate, 2 cm long, stellately hairy on both surfaces and spiny on the midrib, petioled. Cymes lateral, few-flowered. Calyx 5-fid, hirsute, aculeate. Corolla-lobes ovate-lanceolate, acute, hirsute. Berry the size of a cherry, orange, glabrous. — Flow. March to April.

M. ma. N. d. Cultivated in gardens and often naturalized.

Also known from Brasil.

1183. (4.) **Solanum insanum** L. Spec. Plant. I (1753), p. 188. — Solanum coagulans Forsk. Flor. aeg.-arab., p. 47. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 755. — Boiss. Flor. Or. IV, p. 286. — Del. Illustr. Flor. d'Eg., p. 63 tab. 23 fig. 7. — Sickenberg. Contrib.

Flor. d'Eg., p. 262. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 769. — Schenk Plant. Spec. Aeg., p. 24. — Solanum coagulans var. griseum Dun. in DC. Prodrom. XIII, fasc. I, p. 369. — Solanum sanctum L. Spec. Plant. II, p. 269. — Solanum subexarmatum Dun. in DC. Prodrom. XIII, fasc. I, p. 367. — A shrub 90 cm to 1,50 m high, with dense stellate tomentum on the branches, petioles, underside of leaves and outside of calyx and corolla. Branches terete; spines few or many, 5 mm long, curved, broad at the base. Leaves ovate or ovate-elliptic, sinuate, 10 by 5—8 cm; obtuse, green and minutely stellately hairy on the upper surface, unequal at the base, sometimes spiny on the midrib and nerves; petiole 30 mm long. Flowers solitary or few together (the lower only fertile), cernuous; peduncle short. Calyx spiny outside, cupshaped; lobes lanceolate, acuminate. Corolla purple or white, 1—$2^1/_4$ cm in diam.; lobes ovate, acute. Filaments very short; anthers $5^1/_2$ mm long, oblong, pores small, terminal. Style longer than the stamens. Fruit subglobose, $2^1/_2$ cm in diam., yellow. — Flow. March to April.

N. v. Siut; Luksor; Kom Ombo; Aswân. — **O.** Dakhel; Great Oasis. — **D. a. mer.** Kene; Qoseyr.

Local name: Kaderânbes.

Also in South and Tropical Africa extending through Arabia to Scind and the Pundjab.

1184. (5.) **Solanum Melongena** L. Spec. Plant. I (1753), p. 186. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 754. — Solanum esculentum Dun. Hist. Solan., p. 208 tab. 3 and Dun. in DC. Prodrom. XIII, fasc. I, p. 355. — A robust herb or almost a shrub, spiny. Branches terete, usually dark purple, clothed with sessile stellate hairs. Leaves ovate, repand or sinuate, acuminate, unequal at the base, 9—18 cm long, 6—10 cm wide, stellately tomentose on both surfaces, unarmed, rarely spiny; petiole 2 cm long, spiny. Flowers solitary, or few in a cyme with the lowest alone fertile, 5—9-merous. Calyx often spiny, 8 mm in diam., enlarging in fruit; lobes unequal, linear-lanceolate. Corolla violet-purple, 2—$2^1/_2$ cm in diam., stellately hairy on both surfaces; lobes 8—10 mm long, triangular, acute. Filaments short; anthers 5—8 mm long, oblong or oblong-lanceolate, pores apical, small. Style 5—8 mm long, slightly curved, stellately hairy at the base. Berry oblong or slightly enlarged above, 12 cm long, blackish-purple; placentas fleshy. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated abundantly in all parts and often naturalized.

Local name: beydingân aswad (Ehrenberg); generally; beydingân.

Also known from Tropical Africa.

486. (3.) **Physalis** Linn.

Calyx campanulate, or pyramidal, shortly or to the middle 5-lobed, enlarged in fruit, inflated, membranous, 5-angled or prominently 10-ribbed, often 5-auricled at the base; teeth conniving. Corolla subrotate or very widely campanulate, 5-angled or shortly and widely 5-lobed. Stamens 5, inserted near the corolla-base; filaments filiform; anthers erect, usually shorter than the filaments; cells parallel, dehiscing longitudinally. Ovary 2-celled; style filiform; stigma shortly 2-lobed; ovules numerous. Berry globose, enclosed in and much smaller than the inflated calyx. Seeds many or few, smooth or slenderly tuberculate-rugose, compressed; embryo near the margin, curved; cotyledons semiterete. — Annual or perennial herbs, glabrous or more often clothed with simple or stellate hairs. Leaves entire, sinuate or more rarely pinnatifid. Flowers small, solitary, axillary, pedicellate, violet, yellow or white, often purple at the base.

Species about 30, chiefly in the warmer parts of America.

1185. **Physalis peruviana** L. Spec. Plant. II (1762), p. 1670. — Dun. in DC. Prodrom. XIII fasc. I, p. 440. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 757. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 769. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Physalis tomentosa Medic. Act. Acad. Theod. Palat. IV Phys. (1780), p. 184 tab. 4 not of Thunbg. — Physalis edulis Sims Bot. Mag. tab. 1068. — Herbaceous or suffruticose from a perennial rootstock, with simple white hairs on the stem, leaves and outside of the calyx. Stem erect, branched, sulcate when dry. Leaves cordate, acuminate, entire or irregularly dentate-sinuate, 6—9 cm long, $5^1/_2$—6 cm wide; petiole up to $5^1/_2$ cm long. Flowers solitary on cernuous peduncles 1 cm long, arising just outside the leaf-axils. Calyx in flower 1,5 cm in diam., campanulate with 5 lanceolate acute lobes 6 mm long, in fruit shortly ovoid, acuminate, $2^1/_2$ cm long, $2^1/_4$ cm in diam. Corolla 1,5 cm in diam., rotate-campanulate, slightly 5-lobed, pale yellow with 5 large dark purple spots at the base of the lobes. Stamens inserted near the corolla-base; filaments filiform, 5 mm long; anthers oblong, obtuse $2^3/_4$ mm long. Ovary globose; style cylindrical, 1 cm long; stigma subcapitate. Berry globose, 1 cm in diam., glabrous. — Flow. January to March.

M. ma. M. p. N. d. N. f. N. v. O. D. i. D. a. sept. Often cultivated and naturalized.

Local name: habwa (Schweinfurth); hashîsh sakrân.

Throughout the tropics, probably a native of South America. Naturalized in many places.

487. (4.) **Withania** P. d. B.

Calyx campanulate, 5—6-toothed, enlarged and inflated in fruit. Corolla narrowly campanulate, 3—6-fid; lobes valvate. Stamens inserted near the corolla-base; filaments slightly flattened; anthers erect; cells parallel, dehiscing longitudinally. Disk annular, crenulate or none. Ovary 2-celled; style filiform; stigma shortly and widely 2-lamellate or subglobose; ovules many. Berry globose, shorter than the enlarged calyx. Seeds compressed; embryo near the margin, and incurved or spiral; cotyledons semiterete. — Hoary shrubs, loosely tomentose, woolly or glabrescent. Leaves entire or slightly sinuate. Flowers usually fascicled, subsessile or shortly pedicellate, mediumsized.

Species about 5, extending from Southern Europe and Western Asia through North Africa, the Canary Islands, and South Africa.

1186. **Withania somnifera** Dun. in DC. Prodrom. XIII fas. I (1852), p. 453. — Boiss. Flor. Or. IV, p. 287. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 758. — Physalis somnifera L. Spec. Plant. II, p. 187. — Sibth. and Smith Flor. graec. tab. 233. — Wight Icon. tab. 853. — Physalis arborescens Lin. Spec. Plant. ed II, p. 261. — Physaloides somnifera Moench Method., p. 473. — An erect much-branched shrub, 60—80 cm high. Stem terete, tomentose. Leaves ovate, obovate or oblong, obtuse, tapering towards the base, entire or very slightly sinuate, variable in size, averaging $5^1/_2$ by 2 cm, more or less tomentose on both surfaces; petiole 1 cm long, tomentose, channelled above. Flowers 4—6 in axillary fascicles; pedicels 5 mm long in flower, elongating afterwards. Calyx 2 mm in diam., campanulate, densely tomentose outside; lobes 5, lanceolate. Corolla $5^1/_2$ mm long, divided nearly to the middle into 5 triangular lobes. Filaments inserted near the corolla-base, $2^1/_2$ mm long, filiform; anthers oval, 8 mm long. Ovary ovoid, glabrous; style shorter than the stamens. Berryred globose, glabrous, 7 mm in diam., enclosed in the much inflated calyx. Seeds compressed. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. O. Abundantly cultivated and often naturalized.

Local name: morgân (Del.); semm-el-fâr (Elrenberg); suum-el-ferrukh; khasraqût; foqqêysh (Ascherson); generally: sekrân.

Also from the other parts of the Mediterranean basin.

488. (5.) **Capsicum** Linn.

Calyx shortly campanulate, truncate or with 5 teeth or setae, accrescent. Corolla subrotate, 5-partite; lobes valvate. Stamens 5.

inserted near the corolla-base; filaments filiform; anthers shorter than or about as long as the filaments, dehiscing longitudinally. Disk small. Ovary 2- (rarely 3-) celled; style filiform; stigma more or less clavate; ovules many. Berry from small and globose to large and conical or almost linear. Seeds compressed, rugose or nearly smooth; embryo much curved, near the circumference; cotyledons semiterete. — Annual or perennial much-branched herbs, rarely shrubby at the base. Leaves entire or repand. Pedicels solitary or 2—3-nate. Fruit erect or nodding.

Species about 50, chiefly natives of Tropical America; many cultivated throughout the tropics.

1187. **Capsicum frutescens** L. Spec. Plant. I (1753), p. 189. — Fingerhuth, Monogr. Capsic. 17, t. 4, fig. c. — Dunal in DC. Prodr. XIII. I. 413. — Sendtn. in Mart. Fl. Bras. X. 142. — C. B. Clarke in Hook. f. Fl. Brit. Ind. IV. 239. — C. conicum, Meyer in Kotschy, Iter. Nub. no. 292; Zarb in Cat. Spéc. Bot. Pfund, 31. — C. conoides, Roem. & Schult. Syst. IV. 562. — Fingerhuth, l. c. 14. — C. fastigiatum, Blume, Bijdr. 705. — Benth. & Trim. Medic. Pl. t. 188. — Capo-molago, Rheede, Hort. Malab. II. 109, t. 56. — A shrub, 60—90 cm high; branches flexuous; branchlets slightly angled, nearly glabrous. Leaves solitary or geminate, ovate, acuminate, attenuate into the petiole, glabrous or slightly ciliate on the margin, very variable in size. Flowers solitary or in pairs; peduncles 3 to 6 cm long, thickened upwards, erect in fruit. Calyx cup-shaped, truncate, 10-nerved, sometimes minutely 5-toothed. Corolla white or pale yellow; lobes lanceolate, acute, patent. Ovary ovoid, glabrous. Berry ovoid-oblong, obtuse, shining red. — Flow. December to February and March.

N. v. Near Luksor cultivated and rarely subspontaneous.

Local name: filfil ahmar.

Cultivated throughout the Tropics; native country uncertain.

489. (6.) **Lycium** Linn.

Calyx campanulate or tubular, truncate or irregularly 3—5-toothed, not or but slightly enlarged in fruit. Corolla tubular, funnel-shaped, campanulate or urceolate; tube short or long, often swollen at the throat; lobes 4—5, flat, imbricate, patent. Stamens 4 - 5, inserted in the corolla-tube, included or exserted; filaments filiform, often dilated and hairy at the base; anthers short, cells parallel, dehiscing longitudinally. Disk annular or cupular. Ovary 2-celled; ovules many. Berry globose, ovoid or conical, rather fleshy; pericarp thin or fleshy. Seeds many, rarely few or solitary,

compressed; testa crustaceous, pitted; embryo much curved, near the circumference; cotyledons semiterete. — Trees or shrubs, ultimate branchlets often spiny, glabrous or pubescent. Leaves entire. linear to lanceolate, subterete or flat, often in fascicles on rudimentary branchlets. Flowers usually solitary.

Species about 50, in temperate and warm regions throughout the world; very common in extra-tropical South America.

A. Filaments glabrous.
  I. Corolla inside glabrous . . . . . 1. **L. Schweinfurthii.**
  II. Corolla inside pilouse.
    a) Calyx glabrous or ciliate at the margin 2. **L. Aschersonii.**
    b) Calyx pilosus.
      1. Corolla-lobes one-third as long as the tube . . . . . 3. **L. europaeum.**
      2. Corolla-lobes one-fourth as long as the tube . . . . . 4. **L. arabicum.**
A. Filaments pilose . . . . . 5. **L. vulgare.**

1188. (1.) **Lycium Schweinfurthii** U. Dammer in Engler's Botan. Jahrb. Beitr. Flora von Afrika XL (1912), p. 224. — Branches spiny; spines longer than the leaves. Leaves solitary, fleshy, linear, sessile, glabrous, 4—12 mm long, 1—2 mm broad. Flowers solitary shortly pedicellate; pedicels 1—2 mm long; calyx cupular, 2 mm long, shortly 5-dentate, sinuses rotundate, glabrous, acute, barbate at the top; corolla infundibuliform; tube 2 mm long, cylindrical in the lower quarter, than gradually widening upwards; lobes 5, 6 mm diam., rotundate, obsoletely ciliate at the margin. Stamens 5, unequal, inserted above the middle of the corolla-tube, included; filaments glabrous, small, 2 mm long; anthers cordate-ovate, somewhat mucronulate at the tip; Ovary conical 1 mm long; style filiform 7 mm long; stigma broad. Berry globose 3 mm in diameter. Flow. July.

M. ma. Alexandria (Schweinfurth).

Only known from this locality.

1189. (2.) **Lycium Aschersonii** U. Dammer in Engler's Botan. Jahrb. Beitr. Flora von Afrika XL (1912), p. 225. — Branches greyish, the young branches densely pilose then glabrous, spiny, leafy; spines small, 5 mm to 4,5 cm long. Leaves thickly elongate-spathulate, nearly sessile, 1—2,5 cm long, 2—5 mm broad. Flowers solitary or rarely 2, pedicellate, pendulous, pedicels 3—5 mm long, tomentose; calyx cupular 2 mm long, 2 mm in diameter, 5-angulate, 5-crenate, with ciliate margin; corolla infundibuliform, tube 14 mm long, upwards gradually widening, inside half way between the

filaments pilose; lobes rotundate, with a ciliate margin. Stamens 5, subequal; filaments glabrous, 2,5—3 mm long; anthers broadly oval, 1 mm long or shorter. Ovary conical, 1,5 mm long. Style filiform toward the tip somewhat thickened, 10 mm long; stigma globose. — Flow. December.

M. ma. In fields near Alexandria (Ascherson).

Only known from this locality.

1190. (3.) **Lycium europaeum** L. Spec. Plant. I (1753), p. 192. — Boiss. Flor. Or. IV, p. 288. — Sibth. and Smith Flor. graec., tab. 236. — Rchbch. Ic., tab. 15, fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 759. — Aschers. Flor. Rhinocol., p. 801 no. 189. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Aschers. Flor. Sirbon., p. 812 no. 28. — Lycium mediterraneum Dun. ap. DC. Prodrom. XIII, fasc. I., p. 513. — A shrub, 2—4 m height, glabrous or pruinose, glaucescent. Leaves oblanceolate, oblique, obtuse or acutish. Calyx at first equally toothed, then somewhat 2-lipped; corolla violet, lobes one-third as long as the tube; stamens included. — Flow. March to April.

M. ma. Marmarica: Matruqa; Bîr-Hammâm; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta; Brullus.

Local name: ʾaneb-ed-dîb (Ascherson); ʾaqûd (Ascherson).

Also known from all the other parts of the Mediterranean region.

1191. (4.) **Lycium arabicum** Schweinf. in Boiss. Flor. Or. IV (1879), p. 289. Aschers.-Schweinf. Ill. Flor. d'Eg., p. 112 no. 760. — Sickenberg. Contrib. Flor. d'Eg., p. 261. — Lycium mediterraneum Dun. var. δ, ε and ζ Dun. ap. DC. Prodrom. XIII, fasc. I, p. 524 to 525. — Branches slender, glabrous or ashy pubescent, spines straight. Leaves spathulate-obovate or oblong, glabrous or puberulous, 5—6 mm long, 1—5 mm wide; petiole up to 5 mm long. Flowers solitary; peduncle up to 5 mm long. Calyx short, tubular, 5 mm long, including 5 mm long triangular lobes, ciliate. Corolla blue-purple; tube 8 mm long, cylindrical in the lower quarter, then gradually widening upwards; lobes 5, oval, obtuse, ciliate, 2,5 mm long. Stamens 5, unequal, inserted about the middle of the corolla tube, included; filaments glabrous; anthers 1 cm long, shortly apiculate. Ovary globose. — Flow. April to March.

D. i. D. a. sept. D. a. mer. Common bush in all the Wadies.

Local name: sahanûn (Klunzinger, Schweinfurth); generally: ʾusedj, ausedj.

Also known from Nubia, Tripolitania, Arabia Petraea and India.

1192. (5.) **Lycium vulgare** Dun. in DC. Prodrom. XIII (1852), p. 509. — Lycium Barbarum α vulgare Ait. Hort. Kew. ed. II, p. 3. — Lycium halimifolium Mill. Dict. no. 6. — Branches elongate, whitish, armed or inermed, axillary spines 6—12 mm long, whitish, acute. Leaves thickly, subsessile acuminate, upperside green, underside glaucescent, 2—3 cm long, 3—6 mm broad. Peduncles axillary, one-flowered, solitary, floriferous 6 mm long, somewhat thickened at the tip, glabrous. Calyx green 2—3 mm long, lobes scarious at the margin white, puberulous. Corolla-tube infundibuliform, tube inside barbate; lobes ovate-lanceolate obtuse, 2—5 mm long, 1 to 2 mm broad. Stamens exserted, hairy towards the base, subflexuous. Anthers oblong-linear, 1 mm long. Ovary 2-celled, turbinate. Style white, erect or suberect, 5 mm long, never longer than the stamens. Stigma green. Berry ovate-lanceolate. — Flow. April.

M. ma. Alexandria-West and -East.

Also known from Europe and the Orient, probably originary in Central Asia.

490. (7.) **Datura** Linn.

Calyx long, tubular, 5-fid or spathaceous, often persistent at the base. Corolla funnel-shaped; limb plicate; lobes 5—10, short, broad, often acuminate. Stamens 5, inserted near the base of the corolla-tube, included; anthers linear, dehiscing longitudinally, sometimes cohering into a tube. Ovary 2-celled, or more or less spuriously 4-celled; style filiform, dilated and 2-lamellate at the apex. Capsule smooth or spiny, dehiscing by 4 valves or irregularly. — Herbs, shrubs or trees, glabrous or sparingly hairy. Leaves alternate, entire or coarsely toothed. Flowers solitary, large, fragrant, white, pinkish or yellow, erect or cernuous.

Species about 12, widely dispersed through the temperate and warmer regions of both hemispheres.

A. Capsule cernuous, spiny, dehiscing irregularly.
  I. Plant pubescent. Corolla 10-toothed . . . . 1. **D. Metel.**
  II. Plant glabrous or nearly so. Corolla 5—6 toothed 2. **D. fastuosa.**
B. Capsule erect, 4-valved.
  I. Capsule smooth . . . . . 3. **D. suaveolens.**
  II. Capsule spiny . . . . . 4. **D. Stramonium.**

1193. (1.) **Datura Metel** L. Spec. Plant. I (1753), p. 179. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 762. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Dun. in DC. Prodrom. XIII, fasc. I, p. 543. — Boiss. Flor. Or. IV, p. 292. — Bot. Mag., tab. 1440. — Datura guayaquilensis H. B. K. Gen. et Spec. nov., p. 111. — Stem

erect, 90 cm to 1,50 m high, herbaceous, terete, subdichotomous, densely pubescent. Leaves solitary or the upper ones geminate, ovate, entire or repand-dentate, up to 16 cm long and 8 cm broad, densely pubescent on both surfaces, generally glandular. Flowers shortly pedicellate, at first erect, finally cernuous. Calyx tubular, 6 cm long, slightly pubescent; teeth 5, unequal, triangular-oblong. Corolla white, nearly twice as long as the calyx; limb 10-toothed. Filaments glabrous; anthers erect, white. Ovary muricate. Capsule globose, pendulous, spiny, dehiscing irregularly. — Flow. January to March.

N. d. N. v. Caire; Island of Roda; 'Abbasîya; Shubra naturalized.

Cosmopolitan in the Tropics; probably originally from South Tropical America.

1194. (2.) **Datura fastuosa** L. Syst. Plant., ed. X (1783), p. 932. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 763. — Boiss. Flor. Or. IV, p. 292. — Dun. in DC. Prodrom. XIII, fasc. I p. 542. — Wight Icon., tab. 1396. — Mart. Flor. Brasil. X, p. 162. — Datura aegyptiaca Vesl. Plant. Aegypt., p. 202. — Annual. Stem erect, 1,20—1,50 m high, branched, dark purple with scattered white spots. Leaves up to 19 cm long and 5 cm broad, the upper sometimes geminate, ovate-lanceolate, acuminate, sinuate or repand-dentate, unequal at the base, glabrous on both surfaces. Flowers erect. Calyx tubular, 5 cm long; teeth 5, triangular-lanceolate, acuminate. Corolla white inside, violet outside, 5—6-plicate, folds long-cuspidate. Anthers linear, purplish. Capsule spiny, pendulous, dehiscing irregularly. — Flow. February to March.

M. ma. Ramle; **N. d.** Canâl-el-Farka (Maire); Ismailia, fresh water-canal.

Local name: zamr-es-sultân.

Cosmopolitan in the Tropics.

1195. (3.) **Datura suaveolens** Humb. and Bonpl. ex Willd. Enum. Plant. Hort. Berol. (1809), p. 227. — DC. Prodrom. XIII, p. 545. — Mart. Flor. Brasil. VI, p. 161. — A robust erect perennial herb. Stem thick branched. Leaves ovate-oblong, entire, petiolate, acute, 6—12 cm long. Calyx inflate, angulate, glabrate, persistent at the base, 5-toothed. Corolla with 5 lobes, triangular, spreading or recurved. Stamens included; filaments white, adnate to the corolla-tube, pubescent; anthers compressed, subextrorse. Ovary globular, bilocular. Capsule about 5 cm long, erect, ovoid. — Flow. March.

M. ma. N. d. Cultivated in gardens and often naturalized.

Also known from Tropical South America.

1196. (4.) **Datura Stramonium** L. Spec. Plant. I (1753), p. 179. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 761. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 660 no. 231. — Dun. in DC. Prodrom. XIII, fasc. I p. 540. — Mart. Flor. Brasil. X, p. 163. — A robust erect annual. Stem terete, smooth, dichotomously branched above. Leaves ovate, more or less coarsely toothed or lobed, up to 18 cm long and $6^1/_2$ cm wide, acuminate, unequal at the base, flaccid, slightly hairy when young. Flowers erect in the forks of the branches; pedicels short. Calyx $2^1/_2$ cm long, persistent at the base; teeth 5, triangular. Corolla 6—8 cm long, plicate in bud, tubular-funnel-shaped, white; lobes 5, spreading or recurved, acuminate. Stamens included. Ovary pyramidal, 4-lobed. Capsule about 5 cm long, erect, ovoid, thickly clothed with spines. Seeds about 4 mm long, reniform. — Flow. March to April.

M. ma. N. d. N. v. Often cultivated and naturalized.

Local name: nefîr; semm-el-fîr; datûra; tatura.

Cosmopolitan.

491. (8.) **Hyoscyamus** Linn.

Calyx tubular-campanulate or urceolate, shortly 5-fid; accrescent, rigidly many ribbed. Corolla funnel-shaped, sometimes split down one side; limb oblique, 5-fid; lobes wide, imbricate, more or less unequal, patent. Stamens inserted about the middle of the corolla-tube, usually exserted; filaments filiform, slightly dilated at the base; anthers ovate or oblong, dehiscing longitudinally. Disk none or small. Ovary 2-celled, sometimes thickened at the apex; style filiform; stigma capitate; ovules many. Capsule 2-celled, circumscissile. Seeds more or less compressed, tuberculate or scrobiculate; embryo near the margin, much curved; cotyledons semiterete. — Erect annual or biennial herbs, hairy or glabrous. Leaves sinuate, dentate or incised, rarely quite entire. Flowers usually unilateral, the lower axillary, the upper in a scorpioid spike or raceme. Corolla often reticulately veined.

Species about 9, the others in Central Asia, the Mediterranean region and Canary Islands.

A. Leaves ovate rhombic . . . . . 1. **H. muticus.**
B. Leaves ovate orbicular . . . . . 2. **H. albus.**
C. Leaves oblong.
I. Leaves ciliate . . . . . 3. **H. pusillus.**
II. Leaves not ciliate . . . . . 4. **H. Boveanus.**

1197. (1.) **Hyoscyamus muticus** L. Mant. (1771), p. 45. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 764. — Boiss. Flor. Or. IV, 293. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers. Flor. Rhinocol., p. 801 no. 190. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Jaub. and Spach Illustr. Plant. Or. V, tab. 415. — Scopolia mutica Dun. in DC. Prodrom. XIII, fasc. I p. 552. — Scopolia Datura Dun. in DC. Prodrom. XIII, fasc. I p. 553. — A perennial plant, 30—60 cm high, or sometimes somewhat more, green, crisp-pubescent or hairy; stems thick, often warty, simple or sparingly branched. Leaves fleshy, cuneate at the base, ovate to rhombic, acute, angled or toothed-lobed, rarely entire, the lower ones petioled, blade 10 cm or more long, the upper one sessile; the floral one oblong-lenticular. Corolla whitish, with violet spots, 2 cm long, tube somewhat exserted, limb irregularly split; fruiting calyx 4 cm long, 1,5 cm broad, with broad, triangular, muticous teeth, about one-sixth as long as the tube. — Flow. March to April.

M. p. Bîr-el-Mesa'uidyât; el-'Arish. — **N. d. N. f.** often in sandy places. — **O.** Little Oasis; Dakhel; Great Oasis. — **D. l. D. i. D. a. sept.** Common in the deserts in deep sandy places.

Local name: tatûra (Forsk., Del.); semm-el-fâr (Del.), shegeret-es-sakrân (Roth) generally: sekrân.

Also known from the Libyan desert, Arabia Petraea, Persia, Belutshistan to India.

1198. (2.) **Hyoscyamus albus** L. Spec. Plant. (1753), p. 257. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 767. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers. Flor. Rhinocol., p. 801 no. 191. — Rchbch. Icon. XX, tab. 2 fig. 1. — A perennial plant, 30—60 cm high, or sometimes somewhat more, villous-viscid; stems erect, branching. Leaves petioled, ovate-orbicular, cuneate to cordate at the base, coarsely and obtusely dentate-lobed; floral leaves cordate-ovate, dentate, or oblong, entire, tapering at the base. Corolla pale yellow, purple or green at throat, 1,5—2,5 cm long, with oblique limb, and unequal lobes; stamens slightly longer than the tube; fruiting calyx 2 cm long, 8 mm broad, with short, triangular, acute teeth, one-sixth to one-eighth as long as the tube. — Flow. March to April.

M. ma. Alexandria-West and -East. — **D. i.** Wady-el-Arîsh.

Local name: beng.

Also known from all the other parts of the Mediterranean region.

var. **desertorum** Aschers. in Boiss. Flor. Or. IV (1879), p. 296. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 767. — Flowers

small; lower peduncles often twice to thrice as long as the calyx; calyx-teeth very short. — Flow. March to April.

D. i. Wady-el-Arîsh. — **D. a. sept.** Suez; Galala.

Local name: beng.

Also known from Arabia Petraea.

1199. (3.) **Hyoscyamus pusillus** L. Spec. Plant. I (1753), p. 258. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 766. — Sickenberg. Contrib. Flor. d'Eg., p. 233. — Boiss. Flor. Or. IV, p. 294. — Jaub. and Spach Illustr. Plant. Or., tab. 414. — Hyoscyamus micranthus Ledeb. ex Don. Syst. IV, p. 472. — Hyoscyamus pungens Griseb. Spicil. flor. Rum. II, p. 52. — Dun. in DC. Prodrom. XIII, fas. I p. 554. — An annual plant, 5—30 cm high, or sometimes somewhat more, crisp papillose-pubescent; stem erect, simple or branching from the neck. Leaves oblong to oblong-lanceolate, acute, entire, sinuate-repand to pinnatifid anp pinnatipartite. Corolla 1,5—2 cm long, yellow with purplish throat, included tube, and oblique limb with nearly equal lobes; fruiting calyx 1,5 cm long, 6 mm broad, with triangular, prickly-pointed teeth, about one-fourth as long as the tube. — Flow. March to April.

M. p. Qatîya to el-ʿArîsh. — **N. d.** Damanhur. — **D. i.** Wady-el-ʿArîsh; Kantara.

Local name: sekrân.

Also known from Arabia Petraea and Palestine.

1200. (4.) **Hyoscyamus Boveanus** (Dun.) Aschers.-Schweinf. Illustr. Flor. d'Eg. (1887), p. 113 no. 765. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Scopolia Boveana Dun. in DC. Prodrom. XIII, p. 579. — Scopolia Datora Dun. in DC. Prodrom. XIII, p. 580. — A perennial plant, 30—50 cm high or sometimes somewhat more; stems erect, viscid, striate, often branching from the base. Leaves long-petioled, oblong, attenuate, pubescent-viscid, densely ciliate, the lower ones somewhat dentate, tooth acute, the floral ones smaller linear-oblong, sessile, or nearly so. Calyx obconical, 5-dentate, teeth erect, limb inflat, acute. Corolla twice as long as the calyx, infundibuliform; tube recurved, cylindrical in the lower part, then grudually widening up ward; lobes 5, unequal; Stamens 5, exserted, declinate; filaments capillareous; anthers sagittate. Style filiform, incurwed at the tip. Stigma capitate. Seeds numerous, orbicular. — Flow. March to April.

D. a. sept. Wady omm Mumfeyh; Wady Abu-Marwa.

Also known from other parts of the Mediterranean region.

492. (9.) **Nicotiana** Linn.

Calyx ovoid or tubular-campanulate, 5-fid. Corolla funnel- or salver-shaped; tube long, cylindrical or slightly ventricose; limb equal or oblique; lobes 5, induplicate, patent. Stamens 5, inserted below the middle of the corolla-tube, included or exserted, more or less unequal; filaments filiform; anthers ovoid or oblong, deeply 2-lobed; cells parallel, dehiscing longitudinally. Ovary 2- (rarely 4 or more-) celled; style filiform; stigma dilated, shortly and widely 2-lobed; ovules numerous. Capsule 2- (rarely 4-) celled, dehiscing to the middle or lower by 2-fid valves. Seeds numerous, small, scarcely compressed, granular; embryo straight or more or less curved, cotyledons semiterete. — Herbs or undershrubs, rarely subarborescent, usually with glutinous hairs. Leaves simple, entire or sinuate. Flowers white, yellow, greenish or pink, in terminal panicles or long unilateral bracteate or ebracteate racemes, rarely solitary and axillary.

Species about 40, in extra-tropical North and South America, Australia, and the Pacific Islands.

A. Leaves sessile.
  I. Corolla hypocrateriform . . . . . 1. **N. Tabacum.**
  II. Corolla infundibuliform . . . . . 2. **N. plumbaginifolia.**
B. Leaves petioled.
  I. Leaves acuminate . . . . . 3. **N. glauca.**
  II. Leaves obtuse . . . . . 4. **N. rustica.**

1201. (1.) **Nicotiana Tabacum** L. Spec. Plant. I (1753), p. 180. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 768. — Dun. in DC. Prodrom. XIII, fasc. I p. 557. — Lehm. Hist. Nicot., p. 21. — Comes Monogr. Nicot., p. 7 fig. 1. — Nicotiana macrophylla Spreng. Ind. Hort. Hal. (1807), p. 45. — A robust annual, up to 1,80 m high. Stem erect, viscid. Leaves lanceolate to ovate, the lower up to 60 cm long and shortly petioled, the upper much smaller, sessile and more or less amplexicaul, entire, acute, sometimes undulate, viscid on both surfaces. Panicle terminal. Calyx ovoid, viscid outside, divided nearly halfway down; lobes 5, narrowly lanceolate. Corolla pink, white or pale yellow, viscid outside; tube obconic; lobes 5, patent, short, broadly triangular, acute. Stamens inserted near the base of the corolla-tube, usually included. Ovary ovoid; style about as long as the stamens. Capsule conic, acute or acuminate, as long as the calyx or slightly longer. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: dukhân; tabghâ; tabua.

A Native of America, and met with a stray from cultivation in most warm countries.

1202. (2.) **Nicotiana plumbaginifolia** Viv. Plant. Hort. Di Negro, p. 26. — var. **chlorantha** Dun. in DC. Prodrom. XIII (1852), p. 569. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 114 no. 771. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Nicotiana crispa Pers. Syn. I, p. 217. — An annual plant, 40—60 cm high, or more. Stem scabrid, branching from the base, leafy. Leaves entire, sessile, the lower-ones obovate-spathulate, obtuse, glabrous, the upper-ones oblong-lanceolate half-clasping, acute, undulate, 5-fid. Racemes paniculate, terminal. Calyx-tubulose, subhirtellous 5-fid; lobes unequal, linear-lanceolate. Corolla hypocrateriform; tube pubescent, thrice as long as the calyx; limb 5-fid; lobes ovate, acute. Capsule ovate, glabrous, as long as the calyx; seeds minute, rugose. — Flow. March to April.

N. v. Kasr-el-ʿAïn (Cairo), in the gardens naturalized.

A native of Mexico.

1203. (3.) **Nicotiana glauca** L. Spec. Plant. I (1753), p. 258. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 113 no. 769. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Dun. in DC. Prodrom. XIII, fasc. I p. 563. — Rchbch. Ic. XX, tab. 5 fig. 1. — A tall shrub, 2—4 m high, quite glabrous. Leaves ovate-cordate, 5 cm long, 3 cm broad, on petioles of 3 cm acute, entire, of glaucous hue. Flowers in terminal panicles with subulate bracts. Calyx faintly angular, 5-toothed. Corolla yellow, softly pubescent, 3 times longer than the calyx, its tube incurved, inflated at the throat and contracted at the mouth, the limb very short. — Flow. all the year round.

M. ma. Ramle; Qabâry. — **N. d.** Cairo; Shubra; Helwân. — **N. v. mer.** Thebes. — **D. i.** El-Qantara. — **D. a. sept.** Serapeum; Everywhere cultivated in gardens.

Local name: tombak; musseyss; ssegger-el-gerey (Schweinfurth, Muschler); dukkhân-belledy (Ascherson).

Native of South America.

1204. (4.) **Nicotiana rustica** L. Spec. Plant. I (1753), p. 180. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 114 no. 770. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Lehm. Hist. Nicot., p. 34. — Dun. in DC. Prodrom. XIII, fasc. I p. 563. — Comes Monogr. Nicot., p. 20 fig. 2. — An annual herb, up to 1,20 high, or sometimes somewhat more. Stem terete, branched. Leaves ovate, obtuse sometimes subcordate, glandular pubescent, petiolate, the lower ones up to 30 cm long. Flowers in terminal subpaniculate racemes, bracteate or not. Calyx cyathiform, 5-fid; lobes very short, subequal. Corolla greenish-yellow, salver-shaped, twice as long as the calyx-tube, villous; lobes 5; obtuse. Filaments villous at the base. Style slightly longer than the

stamens. Capsule subglobose, obtuse or emarginate, slightly longer than the calyx. — Flow. December to March.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Cultivated everywhere and often subspontanous.

Local name: dukhân akhdar; dukhân beledy butahugy.

Native of South America.

98. Scrophulariaceae.

Flowers hermaphrodite, more or less irregular. Calyx inferior, persistent; tube campanulate or tubular or sometimes almost none; teeth, lobes or segments usually 5, sometimes 4, rarely 3, valvate, imbricate or open in bud. Corolla-tube campanulate, cylindric or ventricose or enlarged above, more or less curved or straight, sometimes very short, in some genera with 1 or 2 spurs or sacs at the base; limb 5- or 4-lobed (rarely 3- or 6—8-lobed), with the lobes more or less equal and all spreading, or distinctly 2-lipped; upper lip entire, emarginate or 2-lobed, erect, concave or galeate, or sometimes flat and spreading; lower lip 3-lobed, usually spreading, sometimes gibbous at the base or with a palate closing the throat of the corolla; lobes variously imbricate in bud, not plicate, valvate or twisted. Stamens usually 4, didynamous, or 2, rarely 3 or 5, the fifth or uppermost quite absent or reduced to a staminode; filaments inserted in the corolla-tube or at the throat, filiform or slightly dilated, the lower ones sometimes appendaged at the base; anthers 1- or 2-celled, free or coherent or approximated in pairs; cells similar or one smaller or sometimes larger and horn-like and sterile or nearly sterile; connective sometimes 2-branched, each branch bearing a fertile cell or one branch with a fertile cell and the other with a disk-shaped appendage. Disk hypogynous, annular or unilateral, entire or rarely many-toothed, more or less prominent or in some genera obsolete. Ovary superior, sessile, entire, 2- (rarely 3- or very rarely 1-) celled; placentas central, adnate to the septum; style simple, entire or shortly 2-lobed at the apex, stigmatose at the clavate, narrow or capitate apex, or on the inside or margins of the lobes. Ovules numerous or several in each cell, rarely few, anatropous or amphitropous. Fruit superior, usually capsular, septicidal or loculicidal (sometimes both), or dehiscing by pores at the apex, rarely baccate and indehiscent. Seeds numerous, several or rarely few, sessile or nearly so; hilum basilar or lateral; funicle short, small or dilated; testa sometimes membranous and adpressed, pitted, reticulate, scrobiculate, many-ribbed or rarely smooth, sometimes loosely-celled and hyaline; nucellus covered by a thin integument; albumen fleshy, rarely thin or quite disappearing; embryo ussually

straight and scarcely shorter than the albumen; radicle turned towards the hilum. — Annual or perennial herbs, undershrubs or shrubs, rarely trees, glabrous, variously pubescent, or glandular-viscose. Leaves opposite (especially the lower ones), alternate or verticillate, entire, toothed or variously lobed or dissected; stipules 0. Flowers axillary or in terminal racemes, spikes, heads or panicles, racemosely or cymosely arranged; pedicels ebracteolate or in some genera 2-bracteolate.

Genera about 200; species about 2200, cosmopolitan, but most abundant in temperate regions. The medicinal properties of the family are very various. A few species are purgative, others are adstringent or tonic, a far greater number are acrid and bitter or even poisonous. The fox-glove *(Digitalis)* is the only one largly used medicinally, although many others are occasionally employed. The family contains many handsome garden-plants, especially of the genera *Calceolaria, Antirrhinum, Pentastemon, Mimulus, Digitalis*, and Veronica. Most of the Egyptian genera have a wide distribution in both temperate and tropical regions.

A. *Aptosimeae.* — Leaves all altermate or very rarely opposite. Corolla-tube widened into a long throat; lobes 5, flat, subequal, spreading, the two upper ones outside in bud. Anthers 1-celled by confluence. Flowers solitary in the axils of the leaves, the upper ones often racemose . . . . . 1. **Anticharis.**

B. *Verbasceae.* — Leaves all alternate. Corolla rotate or shortly campanulate; tube very short, sometimes almost obsolete; lobes 5, broad the two upper ones outside in bud. Anthers 1-celled by confluence. Flowers solitary or fascicled, in terminal spikes or racemes . . . . . 2. **Verbascum.**

C. *Antirrhineae.* — Leaves, the lower ones at least, opposite, rarely all alternate. Corolla-tube rather long, gibbous, saccate at the base in front; limb 2-lipped; upper lip outside in bud; lower lip often produced at the base into a palate. Stamens 4, rarely the upper ones without anthers; anthers-cells confluent or distinct. Capsule dehiscing by apical pores or valves.

I. Corolla-tube spurred . . . . . 3. **Linaria.**

II. Corolla-tube not spurred . . . . . 4. **Antirrhinum.**

D. *Cheloneae.* — Leaves, the lower-ones at least, opposite, very rarely all alternate. Corolla-tube long or rather long, not saccate, gibbous or spurred, or only very slightly gibbous at the base; limb usually 2-lipped; upper lip outside in bud. Sta-

mens 4, rarely 2, the fifth upper stamens often represented by a staminode. Fruit a 2- or 4-valved capsule or baccate and indehiscent . . . . . 5. **Scrophularia.**

E. *Manuleeae.* — Leaves, the lower ones at least, opposite or rosulate. Corolla-tube very often long, not saccate or spurred at the base; limb equally or nearly equally lobed, upper lobes outside in bud. Stamens 4, rarely 2; anthers 1-celled by confluence of the divaricate cells. Capsule 2- or 4-valved . . . . . 6. **Sutera.**

F. *Gratioleae.* — Leaves, the lower ones at least, opposite. Corolla-tube long or sometimes short, not saccate or spurred; limb nearly equally lobed or sometimes more or less 2-lipped; lobes usually flat, the upper one outside in bud (except in Lindenbergia, in which the lower lip is outside). Perfect stamens 4 or 2; anthers-cells distinct or subconfluent at the apex, rarely quite confluent. Capsule 2-or 4-valved.

I. Stamens 4, didynamous, or the upper pair only perfect, the lower reduced to staminodes . . 7. **Lindenbergia.**

II. Stamens 2—5, scarcely didynamous when 4, the lower pair always perfect, the upper either perfect, or reduced to staminodes or quite absent.

a) Leaves opposite, sessile; calyx 4—5-partite

1. Anthers 1-celled . . . . . 8. **Herpestes.**

2. Anthers 2-celled . . . . . 9. **Peplidium.**

b) Leaves all basilar . . . . . 10. **Limosella.**

G. *Digitaleae.* — Leaves alternate or opposite. Corolla-lobes flat, spreading or the upper-one suberect. Anther-cels closely contiguous at the tip and very often confluent usually divergent at the base, sometimes completely confluent. Herbs or sometimes shrubs . . . . . 11. **Veronica.**

H. *Gerardiae.* — Leaves, the lower ones at least, opposite. Corolla-tube long or sometimes short, not saccate or spurred at the base; lobes flat, usually spreading, one or both of the upper ones inside in bud. Stamens, didynamous or rarely equal, rarely 2; anthers equally 2-celled, sometimes 1-celled, sometimes with a fertile cell and a variously modified sterile or nearly steril cell;

connective sometimes 2-branched, 1 branch bearing a fertile cell and the other a disc-shaped appendage. Herbs or undershrubs, often parasitic or semiparasitic . . . . . 12. **Striga.**

I. *Euphrasieae.* — Leaves opposite. Corolla 2-lipped or rarely nearly equally 5-lobed, not saccate nor spurred at the base; upper lip erect, concave or galeate, inside in bud. Stamens 4, didynamous, rarely 2, ascending against the upper lip of the corolla. Anthers 2-celled, rarely with one cell smaller than the other or quite absent. Capsule loculicidal . . . . . 13. **Eufragia.**

493. (1.) **Anticharis** Endl.

Calyx 5-partite; segments narrow, subvalvate. Corolla-tube dilated above; limb spreading; lobes 5, flat, subequal, rounded, the two posticous lobes outside. Stamens 2, anticous; filaments filiform; anthers subtransverse, glabrous or sparingly pilose, 1-celled by confluence, horse-shoe- or half-moon-shaped before dehiscence, at length flattened out; staminodes 0. Style filiform, subclavate at the apex; stigma obtuse, entire or emarginate. Capsule ovate or oblong, subacuminate, 2-furrowed, loculicidal and septicidal; valves bent inwards at the margins exposing the placentiferous column. Seeds numerous, small, oblong or obovoid, striate; embryo straight; cotyledons ovate. — Dwarf erect herbs with glandular pubescence. Leaves entire. Peduncles axillary, solitary, 1-flowered, often with 2 small bracts. — Meisarrhena, R. Br. in Salt, Abyss. App. 63, name only. Doratanthera, Benth. in Endl. Gen. 685. Gerardiopsis, Engl. Pfl. Ost-Afr. C. 359, and in Engl. Jahrb. XXIII. 507. Distemon, Ehrenb. & Hempr. ex Aschers. in Monatsber. Akad. Wiss. Berlin, 1866, 880.

Species 9, 8 in Tropical Africa, 2 of which extend to Arabia and Western India, and 1 in South Africa.

1205. **Anticharis glandulosa** Aschers. in Monatsber. Akad. Wiss. Berlin (1866), p. 880. — Boiss. Flor. Or. IV, p. 423. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 788. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — Meisarrhena tomentosa R. Br. in Salt, Abyss. App., p. 63. — Distemon glandulosus Ehrenberg and Hemp. ex Aschers. in Monatsber. Akad. Wiss. Berlin (1866), p. 880. — A densely long-glandular-hispid diffusely branched annual 9—12 cm high. Leaves up to 18 mm long, 5—8 mm broad, spathulate-oblong, oblong or oval, obtuse, attenuated at the base; petiole 5—8 mm long. Peduncles $2^1/_2$—$5^1/_2$ mm long; bracts 2—$2^1/_2$ mm long, opposite or subopposite,

subulate, inserted near the middle of the peduncle. Calyx $5^1/_2$ mm long, deeply cleft; segments 1 mm broad, linear or oblanceolate, acute. Corolla rose-coloured, 8—10 mm long; lobes broad, subequal. Anthers free, sparingly hairy on the back. Style shorter than the corolla; stigma capitate. Capsule 6—$6^1/_4$ mm long, about 2—$1^1/_2$ times as long as the calyx, narrowly ovoid, acuminate. — Flow. March to April.

D. a. mer. Kenej; Qoseyr.

Also known from Tropical Africa, Arabia and Western India.

492. (2.) **Verbascum** Linn.

Calyx deeply 5-lobed or -partite, rarely 5-toothed; lobes imbricate. Corolla rotate, rarely concave, with scarcely any tube; lobes 5, broad, slightly unequal, the posticous outside. Stamens 5, affixed, to the base of the corolla; filaments of the 3 posticous stamens or of all bearded; anthers transverse or oblique, 1-celled by confluence. Style entire, compressed, dilated at the apex. Capsule globose, oblong or ovoid or cylindrical, septicidally 2-valved; valves usually 2-lobed, with inflexed margins exposing the placentiferous column. Seeds many, ovoid or oblong, rugose, wingless; embryo straight. — More or less tomentose biennial or perennial herbs, or sometimes undershrubs. Leaves alternate, usually soft, entire, crenulate, sinuate-dentate or pinnatifid. Flowers in simple or branched terminal spikes or racemes; pedicels usually very short, ebracteolate, solitary or fascicled. Corolla yellow, fuscous, purple or red, more rarely white.

Species about 160, chiefly in Europe, North Africa, West and Central Asia.

A. Wool of the filaments white; capsule cylindrical 1. **V. Letourneuxii.**
B. Wool of the filaments yellow . . . . . 2. **V. sinaiticum.**
C. Wool of the filaments violet . . . . . 3. **V. sinuatum.**

1206. (1.) **Verbascum Letourneuxii** Aschers. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 114 no. 74. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 660 no. 231. — Verbascum spinosum Del. Ill. Flor. d'Eg., p. 55 no. 237 not of Linn. — Verbascum marmaricum Letourneux ap. Barbey Herb. au Lev., p. 182. — A many stemmed shrub; stems 50—60 cm long or sometimes somewhat more, in the lower part loosely leafy, in the upper part divaricately branched, often spinescent at the tip, fleshy, white-tomentellous; leaves greenish, pubescent-tomentellous, the basilar-ones long petiolate variable in size, oblong or oblong-lanceolate, narrowed at the base, interrupted pinnatifid,

the upper ones pinnately lobate, segments crenate-dentate, the cauline ones often sessile, smaller than the others, like bracteoles; pedicels thick; bracts oblong-ovate as long as the calyx; calyx floccose-tomentellous, with oblong segments; corolla 1 cm in diameter, outside tomentellous, yellow; filaments with white wool; anthers often reniform; capsule oblong-cylindric tarice as long as the calyx, acuminate, white-tomentellous, often pungent at the tip. — Flow. March to April.

M. ma. Marmarica: Umm Rakûm; Matruqa; Dakalla; Bîr-el-qasaba; Alexandria.

Only known from this locality.

1207. (2.) **Verbascum sinaiticum** Benth. in DC. Prodrom. X (1846), p. 236. — Boiss. Flor. Or. IV, p. 318. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 114 no. 772. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Verbascum fasciculatum Ehrenberg mscr. in Herb. Berol. — A biennial plant, 80 cm to 1 m high, or sometimes somewhat more, densely pannous with golden or rusty wool, long-panicled. Leaves thick, crenate, the lower ones oblong, 30—40 cm long, 6—8 cm broad, tapering at the base; the upper ones ovate, tapering at the tip, somewhat cordate-clasping, and sometimes decurrent at the base. Flowers white, 1 cm broad, 3—5 in a cluster, forming interrupted spikes often 4 cm long; pedicels woolly, unequal, the longest scarcely longer than the calyx; calyx 5 mm long, cleft for two thirds of its length into oblong-lanceolate lobes; capsule ovate, 6 mm long. — Flow. March to April.

D. i. Suez to Gaza.

Local name: kheriya.

Also known from Arabia Petraea.

1208. (3.) **Verbascum sinuatum** L. Spec. Plant. I (1753), p. 284. — Boiss. Flor. Or. IV, p. 322. — Sibth. and Smith Flor. graec., tab. 227. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 114 no. 773. — Rchbch. Ic. XVIII, tab. 24. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — Verbascum Ceccarinianum Boiss. and Heldr. ex. Boiss. Flor. Or. IV, p. 322. — Verbascum Gaillardotii Boiss. Diagnos. Plant. Or. Ser. II, fasc. VI, p. 128. — A biennial plant, 1—2 m high or sometimes somewhat more, more or less densely woolly, yellow or grey; stem ending in a long, broad panicle. Root-leaves oblong-spathulate, 30—50 cm long, nearly sessile, sinuate-pinnatifid, usually wavy; upper leaves oblong, entire, acute, short-decurrent. Flowers 2—5 in distant clusters, bracts cordate-acuminate; pedicels unequal, the longest as long as the calyx; calyx 3 mm long, cleft beyond the

middle; capsule globular, rather shorter than the calyx. — Flow. March to April.

N. d. Alexandria; Damanhur; Zaqaziq; Mahsama; Cairo. — **N. v.** Near Helwân, common. — O. Dakhel. — **D. i.** Sheykh Zoyêd. — **D. a. sept.** Serapeum.

495. (3.) **Linaria** Tournef.

Calyx 5-partite; segments imbricate. Corolla-tube spurred at the base in front; upper lip erect, 2-lobed; lower lip spreading, 3-lobed, produced at the base into a palate, closing the throat of the corolla, or more rarely depressed (not in Egyptian species), leaving the throat open. Stamens 4, didynamous, ascending, included; filaments filiform; anther-cells distinct, oblong, parallel. Style filiform; stigma small, usually emarginate. Ovules many in each cell. Capsule ovoid or globose, dehiscing by a 3-valved pore at the apex of each cell, or by 4—10 valve-like teeth, or by circumscissile or valve-like opercula. Seeds ovoid, wingless, angular or rugose, or discoid and surrounded by a membranous wing. — Herbs, more rarely undershrubs. Lower leaves usually opposite, the upper ones nearly always alternate, quite entire, dentate or lobed. Flowers axillary or in terminal racemes or spikes; pedicels abracteolate. Corolla yellow, white, violet to blue, or variously coloured.

Species about 150, nearly all in the northern extratropical regions of the old world.

A. Cells of the capsule opening by lids. Flowers less than 1,5 cm long.
  I. Annual plants.
    a) Corolla yellow.
      1. Calyx-lobes ovate-oblong . . . . . 1. **L. spuria.**
      2. Calyx-lobes lanceolate . . . . . 2. **L. Elatine.**
    b) Corolla white.
      1. Corolla 2 cm long . . . . . 3. **L. aegyptiaca.**
      2. Corolla 7 mm long . . . . . 4. **L. Kneuckeri.**
  II. Perennial plante . . . . . 5. **L. floribunda.**

B. Cells of the capsule opening at the tip by 4—6 tooth-like valves.
  I. Seeds discoid, membranous margined.
    a) Leaves ovate. Flowers large . . . . . 6. **L. bipartita.**
    b) Leaves linear. Flowers very small . . . . 7. **L. micrantha.**
  II. Seeds oblong, reniform, or 3-angled, not margined.

a) Leaves linear.
1. Pedicels shorter than the calyx . . . . 8. **L. Haelava.**
2. Pedicels as long as the calyx . . . . 9. **L. ascalonica.**
b) Leaves oblong-lanceolate . . . . . 10. **L. albifrons.**

1209. (1.) **Linaria spuria** Mill. Gard. Dict. ed. VIII (1786), p. 15. — Boiss. Flor. Or. IV, p. 366. — Rchbch. Ic. XVIII, tab. 59. — Aschers.-Schweinf. Ill. Flor. d'Eg,, p. 115 no. 777. Sickenberg. Contrib. Flor. d'Eg., p. 264. — Antirrhinum spurium L. Spec. Plant. I, p. 851. — Ic. Dan., tab. 913. — A annual plant, 30—40 cm high, or sometimes somewhat more. Leaves alternate, short-petioled, entire, or the lowest ones somewhat dentate, round-ovate. Pedicels twice or thrice as long as the axillary leaf; calyx-lobes ovate-oblong; corolla yellow, with violet upper-lip; spur curved; seeds with gyrate pittings. — Flow. March to April.

N. d. Alexandria, along the Mahmudîya-canal; Damietta; Tukh.

Also known from the other parts of the Sahara region and Europe and Asia.

1210. (2.) **Linaria Elatine** Mill. Gard. Dict. ed. VIII (1786) no. 16. — Boiss. Flor. Or. IV, p. 367, — Flor. Dan., tab. 426. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 115 no. 778. — Antirrhinum Elatine, L. Spec. Plant. I, p. 821. — Linaria caucasica Muss. in Spreng., System. II, p. 790. — A slender softly hairy much-branched annual; branches up to 60 cm long, prostrate or decumbent, wiry, terete. Leaves usually about 1,75 cm long and 1 cm broad, ovate. truncate, cordate or hastate at the base, minutely mucronate, entire or few-toothed near the base; petiole 2—6 mm long. Peduncles 6—10 mm long, axillary, solitary, slender, subglabrous or villous. Calyx $5^1/_4$ mm long; segments linear-lanceolate or ovate-lanceolate, acuminate, somewhat unequal. Corolla (including the spur) about 1 cm long, pale yellow, violet on the inside of the upper lip and near the base of the lower lip; spur $6^1/_2$ mm long straight or curved. Filaments pilose; anthers ciliate. Capsule slightly shorter than the calyx, globose, minutely puberulous, dehiscing by 2 oblique opercula. — Flow. February to March.

M. ma. Alexandria-West.

Also known from Europe, the other parts of North Africa, Madeira and the Canary Island.

var. **villosa** Boiss. Flor. Or. IV (1879), p. 367. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 115 no. 778. — Linaria bombycina Boiss. and Bl. Diagn. Plant. Or., Ser. II fasc. III p. 101. — Linaria Prestandreae Tineo in Guss. Syn. II, p. 842. — Linaria Sieberi Rchbch. Flor. excurs.,

p. 374. — Ic. Fl. Ishia., tab. 9 fig. 1. — Densely villous; floral leaves as in the type; pedicels glabrous or hirsute, less elongate. — Flow. March to April.

N. d. Alexandria; Damietta; Menzale; Benha-el-'Asl; Mehallet-el-Kebîr; Tanta; Zaqaziq; Qalyûb; Cairo. — **N. f.** Medînet-el-Fayûm; Tamîa; Fedimîn. — **O.** Little Oasis; Farâfra; Dakhel; Great Oasis.

Also known from Europe, the other parts of the Sahara region, Madeira and Arabia Petraea.

1211. (3.) **Linaria aegyptiaca** (L.) Dum. Cours. Bot. Cult. ed. 1 vol. II (1802), p. 92. — Boiss. Flor. Or. IV, p. 369. — Del. Illustr. Flor. d'Eg., tab. 32. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 115 no. 779. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 661 no. 233. — Antirrhinum aegyptiacum L. Spec. Plant. I, p. 851. — Antirrhinum spinescens Viv. Flor. Libyc., p. 32 tab. 27 fig. 2. — A perennial herb or undershrub, 15—30 cm long or sometimes somewhat more, pubescent, much branched from the base and above; branches stiff, elongated, at length spinescent. Leaves 5 mm to 2 cm long, the lower ones oblong, obtuse, the upper ones triangular-hastate. Racemes leafy; pedicels capillary, longer than the leaves, flexed, at the tip, at length spinescent; calyx-lobes lanceolate, acute; corolla 1 cm long; seeds glandular-tubercled. — Flow. March to April.

M. ma. Marmarica: Matruqua; Abusîr; Alexandria-West and -East; Mandara; Abukîr. — **D. l.** Abu-Roash; Pyramids of Zawîyet-el-'Aryân; Pyramids of Saqqâra. — **D. i.** Sâlihîya; Ismailia. — **D. a. sept. D. a. mer.** Common in all the Wadies, especially in shady places.

Local name: 'esheb-ed-dîb; doreyshe y (Forsk.); magenniney (Wilkinson); rîhe (Klunz); gawîm (Schweinfurth).

Also known from Tripolitania, Arabia Petraea and Palestine.

1212. (4.) **Linaria Kneuckeri** Bornmueller in Allgem. Botan. Zeitschrift (1909), p. 2. — A small plant, 30—40 cm high, or somewhat more, glandulous; stems rigid, adscendent, simple or branched, leafy. Leaves densely glandulous-villous, the lower ones small 6 mm broad, 8 mm long; the other gradually diminute, the upper-ones squamiform, all remote, the lower ones shortly petioled, the upper ones subsessile, hastate, the upper ones rotundate at the base; flowers axillary, small, half as long as in Linaria aegyptiaca, with the spur 7 mm long; pedicels short, as long as or somewhat shorther than the calyx; calyx small. 2—4 mm long, densely glandulose-viscidulous, yellowish-white; spur shorter than the corolla; capsule ovate or sub-

globose, glabrous; seeds brownish, granulate-tuberculate. — Flow. March to April.

D. a. sept. Suez, foot of the mount Atâqa.

Also known from Sinai.

1213. (5.) **Linaria floribunda** Boiss. Diagnos. Plant. Or., Ser. I fasc. XIII (1849), p. 40. — Flor. Or. IV, p. 365. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 115 no. 775. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 775. — Aschers. Flor. Rhinocol., p. 802 no. 192. — An annual plant, 30—50 cm high or sometimes more. Ashy-hirsute; root-stock woody; stems prostrate, naked at the base, densely leafy above, ending in spikes often 15 cm long. Leaves small, tapering into a short petiole, the lower ones rhombic-elliptical, entire, or with a small tooth near the middle, upper linear, 1 cm long, 2—4 mm broad, overtopping the flowers. Pedicels capillary, shorter than the calyx; corolla yellow, with a hooked-recurved spur; seeds tubercled. — Flow. March to April.

M. p. El-ʿArîsh. — **D. i.** Wady-el-ʿArîsh.

Also known from Arabia Petraea, Syria and Mesopotamia.

1214. (6.) **Linaria bipartita** Willden. Enum. Plant. Hort. Berol. II (1809), p. 640. — An annual plant, 10—35 cm high or more; stems simple or rarely branching from the neck. Basilar leaves ternate lanceolate-ovate or ovate, the upper ones lanceolate-linear, the lower ones opposite, the upper ones alternate. Corolla 4—5 mm long, blue, erect, bipartite, scarcely longer than the calyx; spur very short, conical. — Flow. March to April.

M. ma. Alexandria, Mahmudîye-canal.

Also known from Algeria and Tunisia.

1215. (7.) **Linaria micrantha** Spreng. Syst. II (1825), p. 794. — Boiss. Flor. Or. IV, p. 375. — Aschers. Flor. Rhinocol., p. 802 no. 193. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 780. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 661 no. 254. — Linaria parviflora Desf. Flor. Atlant. II., p. 44 tab. 137. — Antirrhinum micranthum Cav. Ic. I, p. 51 tab. 59 fig. 3. — An annual herb, 5—15 cm high, or sometimes somewhat more, glaucous; fertile stems 1 or several, simple. Leaves of the sterile shoots linear, of the stems oblong-lanceolate in threes or opposite or sometimes alternate. Corolla 3 mm long, blue, scarcely longer than the calyx; spur very short, conical. — Flow. March to April.

M. ma. Alexandria, along the coast.

Also known from Spain, France, Italy, Greece, Morocco, Algeria, Tunisia, Tripolitania, Syria and Caucasia.

1216. (8.) **Linaria Haelava** Chav. Monogr. Antirrh. (1833), p. 164. — Boiss. Flor. Or. IV, p. 381. — Aschers. Flor. Rhinocol., p. 862 no. 193. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 781. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 661 no. 234. — An annual, erect plant, 5—25 cm high, in shady localities often somewhat more up to 60 cm high, branching from the base, glabrous below; inflorescence glandular-pubescent. Leaves linear, rather fleshy, 1—3 cm long, in whorls of four or three, or opposite, or alternate. Racemes nearly capitate, ovate in flower, elongated in fruit; pedicels shorter than the oblong bract and calyx; calyx-lobes ovate-oblong, much shorter than the corolla-limb; corolla 1,5 cm long, violet, yellow, or variegatel, with broad, inflated palate; spur subulate, longer than the limb; capsules 3 mm long; seeds minute, reniform, — Flow. January to April.

M. ma. Marmarica: Matruqa; Alexandria-West and -East; Abukir. — **M. p.** Bassa-el-Grâdy; el-ʿArîsh. — **D. l. D. i. D. a. sept.** Common in the desert.

Local name: halâwe (Forsk; Del.); sfeyra (Ascherson).

Also known from Tripolitania, Arabia Petraea and Palestine.

1217. (9.) **Linaria ascalonica** Boiss. and Kotschy Diagnos. Plant. Or. Ser. II, fasc. III (1856), p. 165. — Flor. Or. IV, p. 382. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 782. — Aschers.-Flor. Rhinocol., p. 802 no. 194. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — An annual plant, 1—3 m high, glabrous; stems erect, flexuous, branching from the base. Leaves of shoots crowded, opposite, linear-oblong, 1 cm long; of stems and branches filiform-linear, 1—3 cm long. Racemes terminal, very loose, few-flowered; pedicels stiff, as long as the calyx; bract subulate; calyx glabrous, lobes linear, membranous-margined; corolla 7 mm long, yellow; spur as long as the limb; capsules 3 mm long, once and a half as long as the calyx, seeds minute, transversely wrinkled. — Flow. March to April.

M. p. Bîr Nakhe; Abû Heyla; Sheykh Zoyêd; el-Gerâdy; el-ʿArîsh.

Also known from Arabia Petraea and Syria.

1218. (10.) **Linaria albifrons** Spreng. Syst. II (1825), p. 793. — Boiss. Flor. Or. IV, p. 382. — Chav. Monogr. Antirrh., p. 156. — Benth. in DC. Prodrom. X, p. 280. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 783. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 110. — Aschers. Flor. Rhinocol., p. 802 no. 195. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 661 no. 235. — Sickenberg. Contrib. Flor. d'Eg., p. 263. — An annual plant, 6—12 cm high or

more, glabrous, glaucescent, simple or branching from the neck; stems simple or sparingly branched. Leaves oblong-lanceolate to oblong, tapering at the base, 4—7 mm broad, lowest in threes or opposite. Flowers 6—8 mm long, few, nearly capitate, at length loosely spiked; bract linear, nearly as long as the calyx; calyx-lobes linear-oblong, nearly as long as the corolla; corolla whitish, with violet tube, and yellowish palate; capsule 5 mm long, as long as or longer than the growing calyx; seeds ovate, obtuse, puncate-pitted. — Flow. January to March.

M. ma. Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Brullus; el-Arîsh; re-Kharûba; el-Grâdy; — **D. a. sept.** Belbeys.

Also known from Tunisia, Tripolitania, Arabia Petraea, Palestine, Transcaucasia and Persia.

496. (4.) **Antirrhinum** Tournef.

Calyx 5-partite; segments imbricate. Corolla-tube saccate or gibbous at the base, not spurred; upper lip erect, shortly 2-lobed; lower lip spreading, 3-lobed, produced at the base into a prominent palate which often closes the throat. Stamens 4, didynamous, ascending, included; filaments filiform or dilated at the apex; anther-cells distinct, oblong, parallel. Style filiform; stigma small. Ovules numerous in each cell. Capsule ovoid or globose, sometimes oblique, with the posticous cell dehiscing by one pore and the anticous cell by two manytoothed pores, sometimes equal with one pore to each cell. Seeds oblong, truncate, rugose or rather smooth. — Annual or perennial herbs, more rarely undershrubs, sometimes climbing. Lower leaves alternate, rarely opposite, the upper alternate, all quite entire or rarely lobed. Flowers solitary, axillary or in terminal racemes; pedicels ebracteate. Corolla usually showy, rose-coloured, purple, pale-yellow or white.

Species about 35, chiefly in the temperate regions of the northern hemisphere, especially in North America.

1219. **Antirrhinum Orontium** L. Spec. Plant. I (1753), p. 617. — Boiss. Flor. Or. IV, p. 385. — Benth. in DC. Prodrom. X, p. 290. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 784. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers. Flor. Rhinocol., p. 802 no. 196. — Aschers.-Schweinf. Primit. Flor. Marmar, p. 661 no. 236. — An erect branched biennial, a few cm to 60 cm high; stem and branches more or less glandular-hairy, especially in the upper parts, or glabrescent. Leaves 2—5 cm long, 2—9 mm (usually about 5 mm) broad, lanceolate to linear, acute, subacute or obtuse, glabrous or sometimes remotely ciliate, entire. Inflorescence a rigid

distant-flowered raceme; bracts similar to the upper leaves but smaller; pedicels very short, usually hispidly glandular-hairy. Calyx sparingly hispidly hairy; segments $8^1/_2$—14 mm long or sometimes longer, linear, unequal, acute. Corolla 8—20 mm long, rose-coloured with purple veins. Capsule 8—10 mm long, obliquely ovoid, hispidly hairy. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakalla; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p. N. d. N. f. N. v.** Often on cultivated ground. — **D. i.** Wady-el-ʿArîsh. — **D. a. sept.** Rare in the wadies.

Also known from Europe, Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea, Syria and Persia.

497. (5.) **Scrophularia** Linn.

Calyx deeply 5-fid or 5-partite; segments usually obtuse, sometimes orbicular and scarious on the margins, rarely rather acute. Corolla-tube ventricose, globose or oblong; lobes 5, short, flat, 4 (including the 2 posticous, which are usually larger) erect; anticous lobe spreading. Perfect stamens 4, didynamous, affixed to the corolla-tube, declinate, included or exserted, filaments filiform or rather thick; staminode posticous, scale-like, affixed to the apex of the corolla-tube, or wanting; anther-cells confluent, transverse. Style filiform; stigma minute or more rarely capitate. Ovules numerous in each cell. Capsule ovoid or subglobose, usually acute, septicidal; valves entire or bifid. Seeds ovoid, rugose, not winged. — Glabrous or hirsute, often foetid herbs or undershrubs. Leaves opposite or the upper alternate, entire, incised or dissected, often with pellucid dots. Inflorescence a terminal simple or branched thyrsus of lax cymes. Flowers rather small, greenish-purple, purple or yellow.

Species about 120, in the extratropical regions of the northern hemisphere.

A. Staminodes orbicular or reniform.
  I. Lobes of the leaves obtuse . . . . . 1. **S. deserti.**
  II. Lobes of the leaves acute . . . . . 2. **S. xanthoglossa.**
B. Staminodes linear or filiform . . . . . 3. **S. hypericifolia.**

1220. (1.) **Scrophularia deserti** Delile Illustr. Flor. d'Eg. (1813), p. 96 tab. 33 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 785. — Stiefelhagen in Engler's Botan. Jahrb. XLIV (1910), p. 473. — Sickenberg Contrib. Flor. d'Eg., p. 265. — Scrophularia sinaica Benth. in DC. Prodrom. X (1846), p. 314. — A perennial plant, 40—50 cm high or sometimes somewhat more, glabrous,

except the minutely glandular inflorescence; stems slender, sparingly leafy, ending in a panicle or thyrsus. Leaves small, thick, cartilaginous at the margin, petioled, ovate to lyrate with obtuse lobes, the upper sessile, pinnatipartite into oblong to linear-spathulate obtuse, obtusely crenate or dentate lobes. Cymes short peduncled, bifid, 3—9-flowered; bracts and bracteoles scale-like; flowers minute; pedicel shorter than the calyx; calyx-lobes orbicular; narrowly white margined; corolla twice as long as the calyx, its upper lobes small, round; anthers nearly included; scale orbicular; capsule small, twice as long as the calyx. — Flow. February to April.

D. i. Sâlihîya; El-Tîh. — **D. a. sept.** Common in the sandy desert along the Nile alluvium.

Local name: zeyht (Schweinfurth).

Also known from Sinai, Palestine and Persia.

1221. (2.) **Scrophularia xanthoglossa** Boiss. Diagnos. Plant. Or., Ser. I fasc. XII (1853) p. 38. — Stiefelhagen in Engler's Bot. Jahrb. XLIV (1910), p. 473. — Scrophularia aintabensis Boiss. and Hausskn. ex Boiss. Flor. Or. IV, p. 413. — Scrophularia decipiens Boiss. and Kotshy Diagnos. Plant. Or., Ser. II fasc. III p. 156. — Scrophularia expansa Reut ex Boiss. Flor. Or. IV, p. 413. — Scrophularia gileadense Post Journ. Linn. Soc. XXIV (1888), p. 438. — Scrophularia hispidula Boiss. and Bal. Diagnos. Plant. Or., Ser. II fasc. VI p. 157. — Scrophularia turcomanica Bornm. and Sint. in exsic. Sint. 1900 partly. — A perennial, 40 cm to 1 m high, or somewhat more, glabrous-glaucescent; stems erect, rigid, expanding from the middle into a long, thyrsoid or much branched panicle. Leaves thickish, rather fleshy, the lowest obovate-cuneate obtusely crenate, or fan-shaped, incised, the others pinnately cut, with dentate lobes, those of the lower leaves minute, oblong, obtuse, of the upper one lanceolate to linear, acutely denticulate. Cymes short-peduncled, bifid, branches at length elongated, rigid, loose, many-flowered; bracts and bracteoles linear, the latter as long as the calyx; calyx-lobes round, white margined; corolla 5 mm long, thrice as long as the calyx, upper lobes round, large, narrowed at the base; scale large, yellow, often as large as the upper corolla-lobes, with a crenulate margin; stamens more or less exserted; capsule 3—4 mm long, ovate-spherical, mucronate, twice to thrice as long as the calyx. — Flow. March to April.

D. a. sept. Wady Dugla; Wady Hof; Suez (Bornmüller).

Also known from Arabia Petraea, Palestine, Syria, Silicia, Mesopotamia to Persia.

1222. (3.) **Scrophularia hypericifolia** Wydler Mém. Soc. Phys. Genev. IV (1828), p. 166 tab. 5. — Boiss. Flor. Or. IV, p. 424. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 786. — Aschers. Flor. Sirb., p. 811 no. 29. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — Stiefelhag. Monograph. Scroph. in Engler's Bot. Jahrb. XLIV (1910), p. 476. — Scrophularia Saharae Batt. and Trab. Flor. de l'Alg., p. 634. — Scrophularia syriaca Benth. in DC. Prodrom X, p. 316. — A perennial plant, 30—35 cm high, or sometimes somewhat more, glabrous, shrubby at the base, many stemmed, almost leafless, dichotomously branched, ending in depauperated thyrsi. Leaves 1 cm long, entire. Cymes short-peduncled, bifid, 3—5-flowered; bracts and bracteoles minute, triangular; flowers sessile, small; calyx-lobes orbicular, white-margined, stamens included; scale small; capsule. Flow. March to April.

M. p. Bîr-el-Abîd; Bîr-el-Masar. — **D. i.** Sâlihîya; Tell-el-Kebîr; between Ramses and Ismailia.

Also known from Morocco, Algeria, Tunisia, Arabia Petraea, Palestine and Syria.

498. (6.) **Sutera** Roth.

Calyx usually 5-partite, sometimes 5-lobed; segments or lobes linear, lanceolate or rarely ovate, imbricate, not membranous. Corolla deciduous, tubular; tube shorter or much longer than the calyx, usually slender, cylindric below or funnel-shaped, nearly straight or more or less curved towards the apex, gibbous on the upper side near the apex or more or less dilated at the throat or sometimes nearly entirely cylindric; limb spreading, 5-lobed, more or less regular or 2-lipped; lobes entire, emarginate or bifid, subequal, imbricate in bud, the 2 uppermost outside. Stamens 4, didynamous, affixed, to the corolla-tube, more or less exserted or the upper or all of them included; filaments filiform; anthers all perfect, 1-celled by confluence, reniform. Style filiform, included or exserted, somewhat clavate above; stigma obtuse. Capsule septicidal; valves bifid. Seeds many, small, rugose. — Glabrous, pubescent, sometimes viscid herbs, undershrubs or small shrubs often drying blackish. Leaves mostly opposite, dentate, incised or dissected, rarely entire. Bracts usually similar to the leaves, free from the pedicels. Flowers axillary or in terminal racemes or in simple or compound cymes or spikes; pedicels ebracteolate or rarely bracteolate.

Species 123, most numerous in South Africa. 1 in the Canaries.

1223. **Sutera glandulosa** Roth Nov. Plant. Spec. (1867), p. 291. — Boiss. Flor. Or. IV, p. 423. — Benth. and DC. Prodrom. X, p. 362. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 787. — Sickenberg.

Contrib. Flor. d'Eg., p. 264. — Sutera dissecta Walp. Rep. III, p. 271. — Capraria dissecta Del. Illustr. Flor. d'Eg., p. 95 tab. 32 fig. 3. — Jamesbrittenia O. Ktze. Gen. Plant. II, p. 461. — Branches 8—22 cm long, decumbent or ascending, terete, slender. Leaves 1—2 cm long, 5—10 mm broad, ovate or oblong, incised-dentate, pinnatifid or dissected, narrowed at the base, petiolate. Pedicels 2—5 mm long, slender. Calyx $2^1/_4$ mm long; segments linear-oblanceolate, subacute. Corolla 5 mm long, nearly white; lobes 1 mm long, 1,5 mm broad. Capsule as long as or slightly longer than the calyx. — Flow. March to April.

N. d. N. v. Not common on fields margin.

Also known from Tropical Africa, Arabia and India.

499. (7.) Lindenbergia.

Calyx campanulate, 5-fid. Corolla bilabiate; tube cylindric; posticous lip inside, short, broad, emarginate or 2-lobed, erect-spreading; anticous lip larger, 3-lobed, spreading. Stamens 4, didynamous, included; filaments filiform; anther-cells distinct, separated, stipitate, all bearing pollen. Style filiform, subclavate at the apex. Capsule oblong or ovoid, bisulcate, dehiscence loculicidal; valves entire. Seeds many, minute, semi-immersed in the fleshy placentas. — Annual or perennial herbs, hard at the base, rarely undershrubs, decumbent or ascending, villous or more rarely glabrescent. Leaves opposite or the upper alternate, dentate. Flowers subsessile, solitary in the axils of the leaves or in terminal spikes or racemes; bracts foliaceous; bracteoles 0.

Species 14, in North-east Africa, Arabia, India, Malaya and China.

1224. **Lindenbergia sinaica** Benth. in Scrophul. Ind. (1835), p. 22. — Boiss. Flor. Or. IV, p. 425. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 789. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — Bovea sinaica Decsne. in Ann. Scienc. Natur., sér. 2 Vol. II p. 523. — An perennial herb, 50 – 60 cm high or rarely more, stem erect or erect-spreading, usually more or less crooked, simple or usually few-branched, sharply quadrangular, slightly twisted, minutely glandular-pubescent, leafy; branches opposite or alternate, $2^1/_2$—$6^1/_2$ cm long, erect-spreading, often crooked; internodes 8—30 cm long. Leaves opposite, sessile or short-petioled, broadly ovate or the lowermost pair shortly oblong, very thin, somewhat acute, obtuse or rounded, rounded at the base, minutely and very sparingly glandular-pubescent, toothed; lowermost leaves 2—2,5 cm long, 1—1,5 cm broad; upper 1—2 cm long, 1—1,5 cm broad, becoming gradually smaller from below upwards; teeth usually 4 or 5 each side, very small.

Flowers few or many in loose spike-like terminal or lateral racemes, one to each pair of bracts; bracts broadly ovate, 3—1 lin. long and broad, becoming smaller from below upwards, unequal in size in each pair, the smaller subtending the flower, coarsely few-toothed; pedicels 0,5—1,5 mm long. Calyx 5—5½ mm long, rather densely but minutely glandular-pubescent; teeth narrowly linear-lanceolate, 2¾ mm long, acuminate. Corolla-yellow, 5½—6 mm long; tube 5 mm long, 1 mm broad; upper lip oblong-ovate, about 2½ mm long, minutely denticulate, shortly 2-lobed; lower lip about 5 mm long and 5½ mm broad, with a small crest of golden-yellow clavate hairs in the middle; lobes rounded, about 2 mm in diam., minutely denticulate. Anticous filaments with a golden-yellow knee-like appendage about 5 mm long at the base. Capsule globose-obovoid, four times as long as the calyx, obtuse, glabrous. — Flow. March to April.

D. a. sept. D. a. mer. Rare in the Wadies.

Local name: sugget (Schweinfurth).

Also known from Arabia Petraea and Syria.

500. (8.) **Herpestis** Gaertn.

Calyx 5-partite; segments oblong or elliptic or the lateral lanceolate. Corolla shortly infundibuliform-campanulate, 3—5-fid; lobes concave or cucullate, imbricate, unequal. Stamens 3—4, sometimes 2 or 5, affixed to the throat of the corolla, exserted; filaments short; anthers rather large, 2-celled; cells parallel. Style dilated at the apex, very slightly 2-lobed. Ovules many. Capsule ovoid or ellipsoid; valves entire. Seeds many, oblong, incurved, pendulous, striate, carunculate at the hilum. — Slender hairy or glabrous creeping or prostrate herbs growing in marshy places and on wet rocks. Leaves opposite, sessile, 3—7-nerved, entire or crenate at the apex. Flowers small, white, pedunculate in the axils of the leaves, ebracteolate.

Species 2 or 3, also in Guatemala, Western Tropical South America.

1225. **Herpestis Monnieria** H. B. K. Nov. Gen. and Spec. II (1817), p. 366. — Boiss. Flor. Or. IV, p. 426. — Bot. Mag., tab. 2557. — Limosella calycina Forsk. Flor. aeg.-arab., p. 112. — Gratiola Momiera L. Spec. Plant. I, p. 24. — A perennial plant, smooth-stems creeping; leaves fleshy, wedge-ovate. Calyx 5 parted; the 3 outer lobes, especially the upper one, broader. Corolla bell-shaped. 5-lobed or bilabiate, with the upper lip 2-lobed or emarginate, the lower 3-lobed. Stamens 4, didynamous; anther cells contiguous or divaricate. Style dilated and flattened at the appex. Capsule 2-valved, many-seeded. — Flow. March.

D. a sept. Sweet-water canal near Suez (Deflers).

Also known from Tropical South America.

501. (9.) **Peplidium** Delile.

Calyx tubular, 5-angled, 5-toothed or shortly 5-lobed. Corolla with a short tube and 5 nearly equal lobes. Stamens 2, the filaments somewhat dilated at the base; anthers 1-celled (by the confluence of 2 divaricate cells?). Ovary completely 2-celled. Style short, dilated upwards into a broad spathulate lamina curved over the stamens. Capsule globular or ovoid, indehiscent or irregularly bursting (or sometimes 4-valved?). — Small creeping or prostrate herbs. Leaves opposite. Flowers very small, axillary, without bracteoles.

The genus is limited to 2 Australian species, of which one is widely diffused over the warmer regions of Asia and Africa. The genus ought, perhaps, to be reunited with Microcarpaea, in which Smith had placed the common species.

1226. **Peplidium maritimum** (L. fil.) Aschers. in Schweinfurth Beitr. zur Flor. von Aethiop., p. 275 no. 1652. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 790. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — Peplidium humifusum Del. Ill. Flor. d'Eg., p. 123. — Boiss. Flor. Or. IV., p. 427. — Benth. in DC. Prodrom. X, p. 422. — Microcarpaea cochlearifolia Linn. Hook. Bot. Misc. III, p. 95, tab. 29. — For other synonymy see Benth in DC. Prodrom. X, p. 422. — A dwarf prostrate glabrous plant, creeping and rooting at the nodes, sometimes forming dense tufts of 5 or 8 cm diameter, sometimes spreading to a considerable extent. Leaves ovate obovate or orbicular, obtuse, entire, contracted into a short petiole, rather thick especially when small, 5—10 mm long or rarely rather larger (in very wet situations), the short petioles of each pair connected by their membranous margins. Flowers sessile or nearly so in the axils. Calyx scarcely above 2,5 cm at the time of flowering, with 5 prominent angles or folds and membranous between them, the teeth short and obtuse. Corolla-tube rather shorter than the calyx, the lobes very short and rounded. Filaments rather thick, especially towards the base, angulary incurved. Capsule globular, large for the plant, very obtuse, enclosed in the distended calyx, about $2^1/_2$ mm diameter, membranous and indehiscent or at length bursting irregularly towards the base.

M. p. Damietta. — **N. d.** Rosetta (Muschler).

The species extends over the greater part of tropical and subtropical Asia and Africa.

502. (10.) **Limosella** Linn.

Calyx campanulate, 5-toothed. Corolla-tube short, subrotate-campanulate; limb 5-fid, spreading; lobes rounded or ovate-oblong,

imbricate, subequal. Stamens 4, affixed to the corolla-tube, usually shortly exserted; filaments filiform; anthers 1-celled by confluence. Ovary shortly 2-celled at the base, the septum disappearing above; style short, incurved and thickened at the apex; ovules many. Capsule subindehiscent or at length 2-valved; valves entire. Seeds small, ovoid, striate, somewhat rugose. — Small caespitose creeping or floating glabrous herbs, stemless or with stolon-like stems. Leaves radical or fascicled at the nodes, rarely alternate on some of the branches; petiole long; blade linear like the petiole or oblong-ovate or spathulate. Peduncles axillary, often shorter than the leaves, ebracteate. Flowers lilac, white or pale rose, usually small.

Species 6 or 7, 2 of which are widely distributed in all temperate regions; 3 are limited to Tropical and South Africa, and 1 to Australia.

1227. **Limosella aquatica** L. Spec. Plant. I (1753), p. 881. — Boiss. Flor. Or. IV, p. 428. — Flor. Dan., tab. 60. — Rchbch. Ic. XX, tab. 101, fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 116 no. 791. — Sickenberg. Contrib. Flor. d'Eg., p. 264. — Benth. in DC. Prodrom. X, p. 426. — A small tufted glabrous annual aquatic or marsh herb, often producing stolons bearing one or more tufts of leaves and rooting at every tuft, sometimes with branches having alternate leaves. Leaves usually in radical tufts erect, suberect or floating, very variable in size and shape, narrowly spathulate to broadly oblong, sometimes linear; blade 2,5—20 mm long, 1 to 10 mm broad, obtuse, entire; petiole 1—8 mm long, usually very slender. Flowers axillary, solitary; peduncles 2—22 mm long, erect or suberect in flower, often deflexed in fruit. Calyx about 2 mm long; teeth broader than long, minutely apiculate. Corolla lilac, white or pale rose, slightly longer than the calyx; lobes spreading, ovate-oblong, about 2 mm long. Capsule subglobose, about $2^1/_2$ mm in diam. — Flow. February to May.

N. d. Desûq; Fûa; Er-Rahmânîya; Tanta; Bendêla; Mansûra; Zifta; Benba-el-'Asl, everywhere in ditches. — **N. f.** Medînet-el-Fayûm; Begîg; Senhur; Tamîa; El-Hammâm; Kafer Mukfût; El-Edna; Gharaq. — **N. v.** Helwân; Saqqâra; Beni-Suêf; Feshn; Minia; Abû Qirqâs; Roda; Karnak; Erment; Aswân.

Cosmopolitan.

503. (11.) **Veronica** L.

Calyx 4- or 5-partite; segments scarcely imbricate, the fifth posticous segment when present usually smaller. Corolla-tube short, rarely exceeding the calyx; limb spreading, 4- or 5-fid; lateral lobes outside (or one only outside); upper and lower lobes often

narrower. Stamens 2, inserted on the corolla-tube at the sides of the upper lobe, exserted; anther-cells divergent or parallel, obtuse, confluent at the apex. Style subcapitate at the apex. Capsule compressed or turgid, 2-sulcate, loculicidal. Seeds few or many, ovate or orbicular, affixed by the inner flat or concave surface, smooth or rugulose on the back, often with a thickened or wing-like margin; embryo straight. — Herbs, shrubs or more rarely trees. Leaves opposite, moore rarely verticillate or somewhat scattered. Flowers in terminal or axillary bracteate racemes, more rarely solitary in the axils of alternate leaves; pedicels ebracteolate. Corolla blue, purple, flesh-coloured or white, never yellow. Capsule very often obtuse or emarginate.

Species about 200, chiefly in the temperate and cold regions of both hemispheres: very few in tropical countries and America. Shrubby species are numerous in New Zealand.

A. Perennials. Racemes axillary, usually opposite.
  I. Leaves sessile.
    a) Leaves ovate . . . . . 1. **V. angallis.**
    b) Leaves lanceolate-linear . . . . . 2. **V. anagalloides.**
  II. Leaves petioled . . . . . 3. **V. Baccabunga.**
B. Annuals. Flowers terminal or axillary . . . . 4. **V. Buxbaumii.**

1228. (1.) **Veronica anagallis** L. Spec. Plant. I (1753), p. 16. — Boiss. Flor. Or. IV, p. 438. — Rchbch. Ic. XX, tab. 80. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 117 no. 792. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Benth. in DC. Prodrom. X, p. 467. — Veronica aquatica Bernhardi Ueber d. Begriff d. Pflanzenart, p. 66. — A succulent glabrous or glandular-pubescent herb, 30—60 cm high; stem creeping and rooting at the base, then erect, stout, hollow, branched. Leaves sessile, lanceolate, lanceolate-oblong or ovate-lanceolate, 2 to $6^1/_2$ cm long, 1—$2^1/_4$ cm broad, usually acute, semi-amplexicaul, more or less remotely serrate or entire. Racemes 5—$8^1/_2$ cm long, in the axils of all or nearly all the upper leaves; bracts lanceolate or linear-lanceolate, 2—$5^1/_2$ mm long; pedicels spreading, 2—5 mm long. Calyx $2^1/_4$ mm long; segments oblong-lanceolate, 2 mm long, subacute. Corolla blue, pale blue or flesh-coloured, about 5 mm in broad; lateral segments broadly elliptic, nearly 2 mm diam.; upper segment broadly ovate, 2 mm long, nearly 2 mm long, 1,5 mm broad; lower segment 1,5 mm long, scarcely 1 mm broad. Capsule orbicular, slightly emarginate, 2—$2^1/_4$ mm long.

N. d. N. f. N. v. Common in sides of irrigation-canals. — **O.** Little Oasis; Dakhel; Great Oasis.

Local name: habaq (Aschers.).

Also in nearly all warm and temperate regions.

var. **nilotica** Uechtr. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 117 no. 792. — Leaves smaller, crenulate, longer petioled, the upper-ones, acuminate, often with an erect acumen; flowers and fruit smaller than in the type. — Flow. March to April.

N. d. Alexandria. — **N. v.** Near Aswân.

Only known from Egypt.

1229. (2.) **Veronica anagalloides** Guss. Plant. rarior. (1826), p. 5 tab. 3. — Boiss. Flor. Or. IV, p. 437. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 117 no. 794. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — A perennial plant, 30—40 cm high, or sometimes somewhat more, glabrous or puberulent; stems fistulous. Leaves sessile, lanceolate-linear, entire or sparingly denticulate. Racemes panicled; bracts linear, longer than the ascending pedicels; calyx-lobes unequal, elliptical; corolla white, not longer than the calyx. — Flow. February to April.

M. ma. Mariut. — **N. d.** Damanhûr; Tanta; Shirbîn; Mansura; Zifta; Zaqaziq; Qalyûb, everywhere in ditches. — **N. f.** Kôm Fâris; Senûris; Tamîa; El-Wady; Biahmu; El-Edwa; Fidemîn; Gharaq.

Local name: ʾaïn-el-qutt (G. Roth).

Also known from Greece, Anatolia, Arabia Petraea, Syria and Transcaucasia, Europe.

1230. (3.) **Veronica Beccabunga** L. Spec. Plant. I (1753), p. 16. — Forma **minima** Engler Hochgebirgsflora Trop. Afrika (1892), p. 379. — Veronica Beccabunga var., A. Rich. Tentam. Flor. Abyss. II, p. 125. — Flora of Tropic. Africa IV, sect II p. 358. — A glabrous or sparingly puberulous herb; stems about 6 cm long, rather stout and succulent, decumbent and rooting in the lower part. Leaves shortly stalked, elliptic or elliptic-oblong, 1—2 cm long, $5^3/_4$ mm broad, subacute, narrowed at the base, rather fleshy, obscurely few-toothed. Racemes axillary, about 2 cm long, few-flowered; bracts linear-oblong, $2^1/_2$—5 mm long, scarcely acute; pedicels somewhat shorter than the bracts. Calyx $2^1/_2$—$2^3/_4$ mm long; segments oblong, obtuse. Corolla blue about $2^1/_2$ mm long. Capsule suborbicular, slightly shorter than the calyx. — Flow. March.

N. v. Island of the Sirdar near Aswân (Muschler).

Also known from Abyssinia.

1231. (4.) **Veronica Buxbaumii** Ten. Flor. Nap. I (1811), p. 7 tab. I. — Boiss. Flor. Or. IV, p. 465. — Flor. Dan., tab. 1692. — Veronica persica Poir. Dict. VIII, p. 542. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 117 no. 795. — Sickenberg. Contrib. Flor. d'Fg., p. 265. — Rchbch. Ic. Flor. Germ., tab. 78. — Veronica agrestis var. Byzanthina

Sibth. and Smith Flor. graec. I, tab. 8. — An annual plant, procumbent 30—40 cm long, or sometimes somewhat more. Papillary-pubescent. Leaves orbicular to ovate, subcordate, coarsely crenate-serrate, the lower ones petioled; the floral ones scarcely smaller. Pedicels much longer than the leaves; calyx-lobes ovate-oblong, in pairs, divaricating in fruit, longer than the capsule; corolla 1 cm broad, blue, broader than the calyx; capsule ciliate, reticulate, twice as broad as long, with divaricate, obtusely-triangular lobes, keeled; cells 5—8-seeded; style longer than the lobes. — Flow. March to April.

M. ma. Alexandria. — **N. d.** Zaqaziq; Cairo. — **N. v.** Helwân; Tura, recently introduced.

Everywhere in Europe and Arabia Petraea, Palestine and Syria.

504. (12.) **Striga** Lour.

Calyx tubular, 5—15- (rarely up to 17-) ribbed, 5- (rarely 4-) toothed or -lobed. Corolla-tube slender below, usually abruptly curved at or above the middle and more or less inflated from the curve to the apex; limb 2-lipped; upper lip inside, usually shorter than the lower one, entire, emarginate, or 2-lobed; lower lip 3-lobed. Stamens 4, didynamous, included; anthers 1-celled, vertical, affixed at the back, connective sometimes mucronate at the apex. Style thickened or clavate above, stigmatose at the apex. Capsule oblong, ellipsoid or ovoid, loculicidal; valves coriaceous, entire. Seeds many, obovoid or oblong; testa reticulate. — Herbs erect and sometimes rigid, often parasitic and drying black, usually scabrid. Leaves opposite below, alternate above, often linear and entire, rarely toothed, sometimes all reduced to scales. Flowers solitary in the axils of the upper leaves or bracts, usually forming a terminal spike, sessile, 2-bracteolate, small or rather large, often purple, red, orange-red or white.

Species about 34, in the warmer parts of Africa, Asia and Australia.

A. Calyx 5-ribbed.
  I. Corolla-tube curved about the middle . . 1. **S. orobanchoides.**
  II. Corolla-tube curved at the middle . . . . 2. **S. hermontica.**
B. Calyx 10—17-ribbed.
  I. Calyx 10-ribbed . . . . . 3. **S. lutea.**
  II. Calyx 15—17-ribbed . . . . . 4. **S. euphrasioides.**

1232. (1.) **Striga orobanchoides** Benth. in Hook. Comp. Bot. Mag. I (1835), p. 361 tab. 19. — DC. Prodrom. X, p. 501. — Striga gesnerioides Vatke in Oest. Bot. Zeitschrift (1875), p. 11 and in Linnaea XLIII, p. 310. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 117

no. 796. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Striga orchidea Hochst. ex Benth. in DC. Prodrom. X, p. 501. — Buchnera gesnerioides Willd. Spec. Plant. III, p. 338. — Buchnera orobanchoides R. Br. in Salt Abyss. Append. XIV, name only. — A rigid erect parasitic herb 6—40 cm high, usually much branched from the base, more or less covered with short hairs or almost glabrous; root tuberous; branches usually stout, angular, erect. Leaves scale-like, opposite or alternate, lanceolate, up to about 1 cm long, acute. Spikes terminal, often as long as the branches themselves, usually much interrupted, but sometimes rather densely-flowered and scarcely interrupted; flowers opposite to alternate, sessile; bracts lanceolate to broadly lanceolate, about 5 cm long, 1—2 mm broad, acuminate, keeled, nearly glabrous or more or less pilose and ciliate; bracteoles linear, about 5 mm long. Calyx $6^1/_2$—10 mm long, somewhat scarious, shortly hairy or glabrous except the teeth, more or less irregularly 5-toothed, 5-nerved, splitting very easily between the teeth; teeth lanceolate, acuminate, about 2 mm long, ciliate. Corolla brownish-red, rose, lavender to purple, or white; tube $8^1/_2$—10 mm long, bent and inflated above the calyx, glabrous or minutely puberulous; limb 2-lipped; upper lip shortly 2-lobed; lower lip deeply 3-lobed; lobes ovate, $2^1/_2$—$5^3/_4$ mm long, $2^1/_4$—$5^1/_2$ mm broad, entire or slightly toothed at the apex, thin. Style about 5 mm long, persistent. Capsule ovoid-oblong, $5^1/_4$—$5^1/_2$ mm long, 2—$2^1/_2$ mm broad. — Flow. March to April.

O. Great Oasis.

Also known from the Cape Verde Islands, South and Tropical Africa, Socotra, Arabia and India.

1233. (2.) **Striga hermonthica** (Del.) Benth. in Hook. Comp. Bot. Mag. I (1835), p. 365. — DC. Prodrom. X, p. 502. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 117 no. 797. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Buchnera hermonthica Del. Illustr. Flor. d'Eg., p. 245 tab. 34 fig. 3. — An erect usually branched apparently parasitic herb up to 60 cm high or more, but generally about 30 cm, hispidly hairy, scabrid, leafy; stems stout, quadrangular. Leaves opposite or alternate, linear-lanceolate or lanceolate, 2—6 cm long, 2—10 mm broad, acute or acuminate, entire, hispidly hairy chiefly on the margins and nerves, very scabrid. Spikes terminal, more or less densely-flowered, often about 12 cm long; bracts lanceolate, 1—1,5 cm long, 2—$2^1/_2$ mm broad, acuminate, hispidly ciliate, scabrid; bracteoles subulate, 5—$5^3/_4$ mm long, hispidly ciliate; flowers large and showy. Calyx $8^1/_2$—10 mm long, scarious, 5-toothed, 5-nerved, hispidly hairy on the teeth and nerves, sometimes scabrid; teeth narrowly triangular, $2^1/_4$—$2^1/_2$ mm long (the uppermost much smaller), with filiform

tips. Corolla rose-red or red; tube 14—25 mm long, sparingly and minutely pubescent, curved and inflated above the calyx; upper lip suborbicular, about 1 cm in diam., emarginate or shortly 2-lobed; lower lip 3-lobed; lobes oblong or oblong-obovate, 10—17 mm long, $2^1/_4$—$2^1/_2$ cm broad, very thin, veined. Style $5^1/_2$ mm long, persistent. Capsule ellipsoid or oblong, 5—8 mm long, $2^1/_4$—5 mm broad. — Flow. March to April.

N. v. Island of Roda; Beni Hassan; Erment; Esne; in Sugarcane and Sorghum fields.

Also known from Tropical Africa and Arabia.

1234. (3.) **Striga lutea** Lour. Flor. Cochin. (1790), p. 22. — Benth. in Hook. Comp. Bot. Mag. I, p. 363. — Vatke in Oester. Bot. Zeitschrift (1875), p. 11. — Striga hirsuta Benth. in DC. Prodrom. X, p. 502. — Schweinf. Beitr. zur Flor. Aethiop., p. 100. — Striga pusilla Hochst. ex Benth. in DC. Prodrom. X, p. 503. — Striga coccinea Benth. in Hook. Comp. Bot. Mag. I, p. 364 and in DC. Prodrom. X, p. 503. — Campuleia coccinea Hook. Exot. Flor. III tab. 203. — Campuleia hirsuto A. Rich. Tantam. Flor. Abyss. II, p. 132. — Buchnera asiatica L. Spec. Plant. I, p. 680 partly. — An erect slender parasitic herb, often 9—20 cm high (rarely under 6 or more than 22 cm), usually branched, scabridly hairy or sometimes villous, drying green or brown. Leaves alternate or opposite, narrowly linear or sometimes lanceolate, 5 mm to $2^1/_2$ cm (often about 1 cm) long, 1—5 mm broad, acute or obtuse, entire, scabridly hairy. Spikes terminal, usually 8—12 cm long, distant-flowered; bracts linear, $2^1/_2$—8 mm long, obtuse or acute, scabridly hairy; bracteoles similar but shorter. Calyx $5^1/_2$—8 mm (usually 6 mm) long, generally 10-ribbed, 5-toothed, scarious between the ribs, scabridly hairy on the ribs and teeth; teeth stiff, subulate or narrowly triangular, 1—$2^1/_2$ mm long, the uppermost usually smallest. Corolla scarlet, red, yellow or white; tube 8—14 mm long, very slender, glabrous or puberulous, straight and cylindric to about 2 mm below the apex where it is distinctly curved and inflated; upper lip broadly obovate or almost obreniform, about 2 mm long and 5 mm broad; lower lip 3-lobed; lobes obovate or cuneate-obovate, 5—$5^1/_2$ mm long, $2^1/_2$—$2^3/_4$ mm broad. Style $6^1/_2$ mm long. Capsule oblong-ovoid or ellipsoid, $2^3/_4$—5 mm long, 2—$2^1/_4$ mm broad. — Flow. February to March.

N. v. mer. South of Aswân, banks of the Nile (Muschler).

Also known from Tropical Africa, the Mascarene Islands and the hotter parts of Asia.

1235. (4.) **Striga euphrasioides** Benth. in Hook. Comp. Bot. Mag. I (1835), p. 364. — DC. Prodrom. X, p. 503. — Buchnera

euphrasioides Vahl Symb. Bot. III, p. 81. — Wight Icon. Plant. Or., tab. 855. — An erect annual herb, 12—38 cm high, almost glabrous or more or less covered with short stiff hairs, usually very scabrid; stem simple or freely branched; branches erect-spreading. Leaves mostly alternate, linear to linear-lanceolate, 1—5 cm long, 1.5 to 5 mm broad, rather acute, entire or few-toothed. Flowers axillary, solitary, alternate, forming long lax terminal spikes; lower bracts leaf-like, the upper linear to subulate, 5—8 mm long, shortly and finely pubescent; bracteoles linear, $2^1/_4$—5 mm long, otherwise as the bracts. Calyx tubular, 10—$10^1/_2$ mm long, prominently 15-ribbed, 5-toothed, hispidly pubescent; teeth lanceolate, slightly unequal, $2^1/_2$ to $2^3/_4$ mm long, elongating in the fruiting stage, acute. Corolla rather densely white-pilose on the upper part of the tube and on the outside of the limb; tube about 1 cm long, abruptly curved about 1,5 cm from the base and inflated at the curve; upper lip broadly obovate, emarginate or truncate, $2^1/_2$—5 mm long, 5—$5^1/_2$ mm broad; lobes of the lower lip narrowly obovate to obovate-oblong, $5^1/_2$—8 mm long, $2^1/_4$—$2^3/_4$ mm broad, obtuse. Capsule ovoid, 5 mm long, $2^3/_4$ mm broad, apiculate; valves recurved at the apex after dehiscence. — Flow. March to April.

M. ma. Mandara in sandy places probably recently introduced (Muschler).

Also known from Tropical Africa, India, Ceylon and Java.

505. (13.) **Eufragia** Griseb.

Calyx tubular, 4-cleft. Corolla tubular, cylindrical, the upper lip hooded, not plaited, the palate convex, and the lower lip spreading, 3-lobed. Stamens didynamous, the cells of the anthers mucronate. Capsule oblong or lanceolate, somewhat compressed. Seeds numerous, minute, not grooved. — Annual, viscid herbs.

A small genus of only a few species in the Mediterranean region and the Orient.

1236. **Eufragia viscosa** Benth. in DC. Prodrom. X (1846), p. 543. — Boiss. Flor. Or. IV, p. 474. — Rchbch. Ic. Flor. German. tab. 105. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 798. —. Sickenberg. Contrib. Flor. d'Eg., p. 265. — Bartsia viscosa L. Spec. Plant. I, p. 839. — Trixago viscosa Rchbch. Flor. exc., p. 360. — Rhinanthus maximus Lam. Dict. VIII, p. 312 not of Willd. — An annual plant 30—50 cm high, or sometimes somewhat more; Leaves 2—3 cm long, oblong, crenate-dentate. Spikes long, loose calyx-lobes linear, scarcely shorter than the tube; corolla 1,5 long,

yellow, lower lip longer than the upper one; anthers hairy. — Flow. January to April.

N. d. From Khanka to Belbeys.

Also known from Arabia Petraea, Palestine and Syria, Mediterranean region and Atlantic Europe.

99. Bignoniaceae.

Flowers hermaphrodite, usually more or less irregular. Calyx inferior, gamosepalous, truncate, lobed or spathaceous. Corolla gamopetalous; tube campanulate, funnel-shaped or tubular, often pilose at the insertion of the stamens; limb bilabiate, the 2-lobed posticous lip usually overlapping the 3-lobed anticous lip in bud, more rarely regular. Stamens inserted on the corolla-tube, 4, didynamous, with a posticous staminode, or 5, equal, very rarely 2; filaments filiform or flattened, often thickened at the base; anthers introrse, dehiscing longitudinally; lobes attached at the apex, parallel, divergent or divaricate. Disk hypogynous, cushion-shaped, annular or cupular, rarely absent. Ovary 2-celled or, more rarely, 1-celled with 2 parietal, often much intruded placentas; ovules numerous, anatropous; style simple, filiform; stigma of 2 flattened lobes. Fruit a 2-valved loculicidal or septifragal capsule, or fleshy and indehiscent. Seeds usually flat with a broad, often hyaline wing; embryo usually enveloped in a fine interior membrane (tegmen); albumen none; cotyledons flattened, rarely folded; radicle short, lateral (very rarely superior). — Trees or shrubs, frequently twiners or climbers, very rarely herbs. Leaves opposite, more rarely whorled or alternate, usually compound with articulated leaflets, often cirrhiferous; stipules absent, but closely simulated in certain genera by the first or first and second pairs of leaves of the axillary bud (pseudostipules). Inflorescence a panicle or raceme (simple or with cymose ultimate branching), terminal or axillary; flowers sometimes borne on the old wood, often large, abundant and brightly coloured.

Genera about 105, many of them monotypic; species about 550, mostly Tropical American.

506. **Tecomaria** Spach.

Calyx truncate or shortly 5-toothed. Corolla tubular, the lobes spreading, nearly equal, obscurely 2-lipped or oblique. Stamens 4, in pairs, included in the tube; anther cells diverging or divaricate. Style with 2 short ovate stigmatic lobes. Ovules numerous, in several rows on each placenta. Capsule (oblong in the Egyptian species) opening loculicidally in 2 very concave valves, the disse-

piment transverse with relation to the valves, and not laterally dilated. Seeds overlaying each other in several rows, flat, broadly winged. — Tall woody climbers. Leaves opposite, pinnate. Flowers in terminal panicles. Bracts minute; bracteoles none.

A small genus of only 3 species, 1 of them in South Africa.

1237. **Tecomaria capensis** Spach Hist. Veg. Phan. IX (1840), p. 137. — Bignonia capensis Thunberg Prodrom. Flor. cap., p. 105. — Tecoma capensis Lindl. Bot. Reg., tab. 117. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 105. — Ducoudrea capensis Bur. Monograph. Bignon., p. 49. — A rambling shrub about 2 m high. Branches subterete, minutely pubescent above, glabrescent below. Leaves opposite, short petioled, 5—10 cm long; leaflets 5—9, rarly 3, shortly stalked, elliptic, orbicular or rhomboidal, more or less olique at the base, 12—30 mm long, 8—10 mm broad (terminal leaflet ovate, acuminate, 18—46 mm long, 9—23 mm broad, its petiole up to 9 mm long), crenate, sometimes mucronulate, glabrescent above, pilose in the axils of the veins below. Racemes of numerous 3-flowered cymes, or sometimes simple in the upper part; peduncle $2^1/_2$—8 cm long, usually overtopping the leaves; rhachis and pedicels finely pubescent; bracts linear-subulate, caducous. Calyx 5—$6^1/_2$ mm long, strongly ribbed, finely pubescent; tube $2^1/_2$—$5^1/_2$ mm long; lobes deltoid, apiculate or acuminate, 1—2,5 mm long, ciliate. Corolla orangered or scarlet; tube laterally compressed, 2—$2^1/_2$ cm long; lobes ovate, obtuse, rather under 1 cm long, ciliate. Capsule 6—10 cm long, 8—10 mm broad, apiculate. — Flow. January to March.

N. d. Alexandria; Cairo, often cultivated in gardens, and rarely naturalized.

Also known from Tropical and South America.

100. Pedaliaceae.

Flowers hermaphrodite, zygomorphic. Calyx divided nearly to the base into 5 segments. Corolla gamopetalous; tube obliquely campanulate, funnel-shaped or cylindric, often gibbous or spurred at the base of the back; limb obscurely 2-labiate, usually short. Stamens 4, more or less distinctly didynamous with the rudiment of the fifth present (very rarely 2 fertile and 2 staminodes), inserted and enclosed in the corolla-tube, rarely shortly exserted; anther-cells 2, dehiscent longitudinally, hanging from the apex of the connective and often somewhat divergent, or dorsally attached to it and parallel; connective nearly always with an apical gland. Hypogynous disk always more or less developed, often asymmetric.

Ovary superior (very rarely inferior), sessile, 2- (rarely 1-), 3- or 4-celled; cells often completely or incompletely divided by spurious septa; style filiform, slightly exceeding the anthers; stigma 2-lobed, lobes ovate to linear; placentas central; ovules 1 to many in each cell. Fruit very variable, dehiscent or indehiscent, often provided with spines, horns or wings. Seeds 1 to many in each cell, sometimes winged, with a delicate or stout testa; albumen very thin. Embryo straight; cotyledons flat; radicle short. — Annual or perennial herbs, rarely shrubs or small trees, more or less covered with sessile mucilage-glands (at least the younger parts). Leaves opposite or the upper ones alternate. Flowers mostly axillary and solitary, rarely in few- to many-flowered axillary and terminal inflorescences; pedicels usually with nectarial glands (modified flower-buds) at the base.

Species about 60 in the tropics and the extra-tropical countries of the southern hemisphere of the Old World.

507. **Sesamum** Linn.

Calyx small or middle-sized, 5-partite, usually suboblique. Corolla obliquely campanulate; limb more or less oblique, obscurely 2-labiate, lowest lobe usually distinctly longer than the others. Stamens subdidynamous, inserted low down in the corolla-tube, not conniving: filaments slender, filiform; anthers dorsifixed, cells parallel, dehiscing longitudinally to the base. Disk annular, equal. Ovary 2-celled; cells divided by a spurious septum almost to the apex; ovules numerous, 1-seriate in each division. Capsule oblong, slightly compressed contrary to the septum, loculicidal towards the base, more or less beaked, without any lateral appendage at the apex. Seeds numerous, compressed, obovate. — Annual or perennial, erect or procumbent herbs. Leaves membranous, sometimes rather firm, petioled or the upper ones subsessile, polymorphous. Flowers solitary in the axils of the leaves on mostly very short pedicels, pale pink to deep purple.

Species about 18 in Tropical Africa, some extending to South Africa and India.

1238. **Sesamum indicum** L. Spec. Plant. I (1753), p. 634. — Boiss. Flor. Or. IV, p. 81. — Bot. Mag., tab. 1688. — Endl. Iconogr., tab. 70. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 106 no. 693. — Bernh. in Linnaea XVI, p. 37. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — DC. Prodrom. IX, p. 250. — Sesamum orientale Linn. Spec. Plant. I, p. 634. — Lam. Illustr. III, p. 82 tab. 528. — Sesamum edule Hort. ex Steud. Nom. ed. I, p. 769. — Sesamum oleiferum Moench Meth., Supplem. p. 174. — Sesamum brasiliense Vell. Flor.

Flum., p. 264. — Volkameria orientalis O. Ktze. Rev. Gen. Plant. II, p. 481. — Stems erect, simple or branched, from a few cm to 1,20 m high, very sparingly and finely pubescent and more or less mealy-glandular, at length glabrescent, obtusely quadrangular, sulcate. Leaves very variable, usually heteromorphic; lowest long petioled (petiole 8—12 cm long), 3-partite or 3-foliolate; segments or leaflets ovate to ovate-lanceolate, acute, deeply dentate, 6—9 cm long, 2—5 cm broad; upper with much shorter petioles, lanceolate, acute, attenuated at the base, 5—8 cm long, 5—8 mm broad, entire, rarely repand, passing into the similar foliaceous bracts; intermediate leaves also intermediate in shape and size; all the leaves very sparingly and minutely pubescent, more or less mealy-glandular below. Pedicels very short, at length 5 mm long, 2-bracteolate or subebracteolate at the base; nectaries sessile. Calyx $5^1/_2$ mm long, finely pubescent; segments lanceolate, acute. Corolla about 2 cm long, obliquely campanulate, whitish, tinged with pink or purple. Capsule 1,5—5 cm long, 5—8 mm broad, usually finely pubescent, rather abruptly contracted into a short deltoid beak. Seeds pale brown or dark, $2^1/_2$ mm long, faces smooth. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. Cultivated everywhere and often naturalized.

Local name: semsem; simsim.

Cultivated in most tropical and subtropical countries for the oil which is extracted from the seeds, very probably of tropical African origin.

101. Orobanchaceae.

Flowers hermaphrodite, zygomorphic. Calyx inferior, gamosepalous, 2—5-toothed or -lobed, rarely truncate, or spathaceous and open in front, or consisting of 2 lateral 1—2-toothed or linear divisions which are either quite free or more or less united at the base in front. Corolla gamopetalous, tubular or funnel-shaped in the upper part, usually curved; limb oblique, 2-lipped or nearly equally 5-lobed; upper one lip entire or 2-lobed, lower lip 3-lobed, lobes imbricate, the upper inside. Stamens 4, didynamous, usually inserted below the middle of the corolla-tube and enclosed in it; filaments filiform; anthers dorsifixed, conniving or cohering (by means of hairs) in pairs; cells parallel or slightly diverging, often mucronate, longitudinally dehiscent, both fertile or one empty. Disk hypogynous, obscure or produced anticously into a nectarial gland. Ovary superior, 1-celled; carpels 2, median, rarely 3; style simple, terminal; stigma orbicular or 2—3-lobed. Placentas 4, separate or contiguous or partly fused in pairs; ovules very numerous, anatropous. Capsule

1-celled, more or less dehiscing with 2 valves. Seeds very numerous, small; testa often foveolate-reticulate; endosperm fleshy. Embryo globose, of few cells, undifferentiated. — Annual or perennial parasitic herbs, almost perfectly destitute of chlorophyll, variously coloured, but never green. Stems usually simple, solitary or fascicled, more or less fleshy. Leaves reduced to, often fleshy, scales, few or many. Flowers in terminal racemes or spikes, supported by bracts and often also by bracteoles.

Species over 130, almost exclusively in the northern hemisphere, particularly in the warm-temperate regions.

A. Calyx tubular-campanulate, obtusely 4—5-lobed . . . 1. **Cistanche.**
B. Calyx campanulate, acutely 3—5-dentate or 3—5-fid or split to the base in front and on the back . . . 2. **Orobanche.**

508. (1.) **Cistanche** Hoffm. et Link.

Calyx persistent, tubular-campanulate, 4- or 5-lobed; lobes obtuse, rounded, subequal or the two posticous narrower. Corolla tubular below, more or less funnel-shaped above, more or less curved or at length abruptly bent; limb spreading, oblique, 5-lobed; lobes broad, equal or nearly so. Stamens 4, didynamous, subexserted, inserted deep down in the corolla-tube; anthers usually densely bearded and coherent by the hairs; cells parallel, often acute or mucronate at the base. Ovary 1-celled, with 4 distinct placentas, many-ovuled; style curved at the apex; stigma large, orbicular. Capsule 2-valved, dehiscing in the median plane. Seeds very numerous, minute, foveolate-reticulate. — Parasitic plants, variously coloured, destitute of chlorophyll, glabrous or cobwebby. Stems succulent, often bulbously thickened at the base, simple. Leaves reduced to fleshy scales. Flowers bracteate and 2-bracteolate, spicate, rather large, white, yellow or purplish.

Species about 10 in the dry regions of Portugal, Spain, North Africa, and through the Orient to India.

1239. **Cistanche lutea** Hoffmg. and Link, Flor. Port. I (1809), p. 319 tab. 63. — Rchbch. Plant. Critic. VII, tab. 700 fig. 939. — Lathraea Phelipaea L. Spec. Plant. ed. II, p. 844. — Orobanche tinctoria Willd. Spec. Plant. III, p. 353. — Phelipaea lutea Desf. Flor. Atlant. II, p. 60 tab. 146. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 801. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Aschers. Flor. Rhinocol., p. 813 no. 30. — Aschers.-Schweinfurth Primit. Flor. Marmaric., p. 661 no. 239. — Boiss. Flor. Or. IV, p. 500. — Phelipaea tinctoria Walp. Rep. III, p. 462. — Stem swollen at the base, often more than

2,5 cm in diameter, stout, fleshy, like the whole plant, except the stamens and the inside of the corolla-tube, glabrous, 15—45 cm high. Scales fleshy, lurid purplish or tinged with yellow, lower crowded, triangular, caudate-acuminate or acute, upper ovate-lanceolate or lanceolate, scattered, 1—2 cm long, margins sometimes thin and more or less transparent. Spike cylindric rounded at the top, or when young comose by the uppermost bracts, from a few cm to 30 cm long, usually dense, rarely somewhat loose; bracts ovate-oblong to lanceolate; as long as the calyx or shorter or longer, in substance and colour like the stem-scales; bracteoles linear, about as long as the calyx. Calyx wide-tubular-campanulate, 12—20 mm long, rarely longer, 5-lobed to $^1/_3$ or almost $^1/_2$ of its length; lobes broad, elliptic-oblong, rounded, more or less imbricate, margins membranous. Corolla bright yellow; tube 2—5 cm long, at first almost straight, then more or less curved, at length often obruptly bent at the middle, cylindric below the middle wide funnel-shaped above it, more or less villous below the insertion; lobes much broader than long, $5^1/_2$—8 mm long, rounded. Filaments hairy towards the base; anthers wooly, cells acute to mucronulate at the base. — Flow. March to April.

M. ma. M. p. N. d. O. D. i. D. a. sept. D. a. mer. Common in deep sandy places.

Local name: halûk (Forsk.); danûn (Wilkins.); barnûq (Figari); tarâthît (Schweinfurth); turfâs (Ascherson); zibb-eb-ard; bashar-el-ard; nabûa-el-ard; dânûn-el-djinn (Ascherson).

Also known from North and Tropical Africa.

509. (2.) **Orobanche** Linn.

Calyx persistent, campanulate, equally or unequally 3—5-dentate or 3—5-fid or split to the base in front and on the back with the divisions entire or 2-fid. Corolla tubular, often curved, with a more or less widened throat; limb more or less distinctly 2-lipped; upper lip entire, emarginate or 2-lobed; lower lip 3-lobed with raised folds between the lobes. Stamens 4, didynamous, included, inserted below the middle of the tube; filaments usually thickened at the base; anthers often coherent, cells parallel or slightly divergent and mucronate at the base. Ovary 1-celled with 4 placentas, approximate or contiguous in pairs, many-ovuled; style curved or almost straight; stigma funnel-shaped, peltate or distinctly 2-lobed, lobes lateral. Capsule dehiscing in the median plane, 2-valved, valves often cohering by the persistent style. Seeds very numerous, minute, subglobose; testa foveolate. Embryo minute, globose, consisting of a few cells,

embedded in endosperm. — Parasitic plants, destitute of chlorophyll, variously coloured, usually more or less covered with gland-tipped papillose hairs. Stems succulent, often bulbously thickened at the base, simple or branched. Leaves reduced to scales. Flowers bracteate, with or without bracteoles, spicate or racemose.

Species 80—90, mainly in the temperate and warm-temperate regions of the northern hemisphere.

A. *Trionychon.* — Bracts and bracteoles present. Calyx usually gamosepalous, 4-toothed or 4-fid, rarely with a small fifth tooth at the back. Corolla bilabiate.
- I. Flowers small, up to 15 mm long.
  - a) Calyx-teeth triangular, shorter than the tube . . . . . 1. **O. ramosa.**
  - b) Calyx-teeth subulate, as long as the tube 2. **O. Schweinfurthii.**
- II. Flowers larger, up to 37 mm long.
  - a) Anthers glabrous . . . . . 3. **O. Mutelii.**
  - b) Anthers lanuginose . . . . . 4. **O. aegyptiaca.**

B. *Osproleon.* — Bracts present, bracteoles 0. Calyx split in front and on the back; lateral divisions entire or 2 toothed or 2-fid. Corolla bilabiate.
- I. Corolla conspicuously inflated below the stamens . . . . . 5. **O. cernua.**
- II. Corolla widened below the stamens.
  - a) Corolla 2,5—3 cm long . . . . . 6. **O. crenata.**
  - b) Corolla 1—2 cm long.
    1. Filaments inserted near the middle of the tube . . . . . 7. **O. versicolor.**
    2. Filaments low down inserted in the tube . . . . . 8. **O. minor.**

1240. (1.) **Orobanche ramosa** L. Spec. Plant. I (1753), p. 633. — Beck Monogr. Orobanch. in Bibl. Both. IV, p. 87, tab. I, fig. 10. — Lam. Encyclop. IV, p. 623, tab. 551, fig. 2. — Rchbch. Ic. VII, fig. 933 to 934. — Phelipaea ramosa C. A. Mey. Enum. Plant. Cauc., p. 104. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 48 no. 799. — Boiss. Flor. Or. IV, p. 498. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Phelipanche ramosa Pomel Nouv. Mat. Flor. Atlant., p. 103. — Orobanche interrupta Pers. Syn. II, p. 181. — Stem slender, branched (usually from the base), rarely simple, yellowish, up to more than 30 cm high, like the whole plant more or less glandular-hairy. Scales ovate to ovate-lanceolate, $5^1/_2$—10 mm long, sometimes almost glabrous. Inflores-

cence spicate or the lowest flowers pedicelled, many-flowered, at length elongated and loose; bracts ovate-oblong to lanceolate, acute, $5^1/_2$—$8^1/_2$ mm long; bracteoles linear-subulate, usually exceeding the calyx-tube. Calyx 8—10 mm long, firmly membranous with prominent nerves, divided to about the middle into 4 triangular acuminate or caudate-acuminate 3-nerved teeth. Corolla pale yellow with a bluish limb, $10^1/_2$—$14^1/_2$ mm long; tube constricted about 5—8 mm above the base. thin and whitish below, gradually and moderately widened above the constriction into the throat, which is about $2^1/_2$—5 mm across, dorsal outline gently curved; upper lip 2-lobed, porrect, lobes very broad, subacute; lower lip with 3 subequal, rotundate, entire or repand, ciliate lobes. Filaments about 5—$5^1/_2$ mm long, glabrous or slightly villous at the base; anthers glabrous or with a few cilia at the base. Style glabrous or with a few gland-tipped hairs; stigma funnel-shaped, obscurely 3—4-lobed, whitish or bluish. — Flow. January to February.

M. ma. Alexandria-West and -East. — **N. d. N. f. N. v.** Common as a parasit on tomato, and tobacco plants and numerous other plants.

Local name: halûk.

Common throughout South and Central Europe, North-Eastern, Tropical and Southern Africa.

1241. (2.) **Orobanche Schweinfurthii** Beck Monogr. Orobanch. in Bibl. Bot. IV (1890), p. 94, fig. 12 — Stem slender, branched, usually from the base, rarely simple, yellowish, up to more than 15 cm high, like the whole plant more or less glandular-hairy. Scales ovate to ovate-lanceolate, 5—7 mm long, sometimes almost glabrous. Inflorescence spicate or the lowest flowers pedicelled, many-flowered at length elongated and loose; bracts lanceolate to oblong-lanceolate acute, shorter than the calyx-tube; bracteoles lanceolate to oblong-lanceolate often oblong, shorther than the calyx-tube. Calyx 6—10 mm long, long and copiously glandular-hairy, firmly membranous with prominent nerves, divided to about the middle into 4 triangular acuminate or caudate-acuminate 3-nerved teeth, three times shorter than the corolla. Corolla pale yellow or whitish; tube constricted about 2—6 mm above the base, thin and whitish below, gradually and moderately widened above the constriction into the throat, which is about 2—5 mm across, dorsal outline gently curved; upper lip deeply 2-lobed, porrect, lobes small, denticulate. Filaments inserted in the constricted part of the corolla, glabrous, never slightly villous at the base as in *Orobanche ramosa;* anthers large, glabrous never ciliated at the base, shortly acuminate, three times shorter than the filaments. Style slightly glandular-hairy; stigma somewhat

globose, somewhat concave in the central part, 2-lobed whitish or brownish. — Flow. March.

N. d. Abu Za'bel (Schweinfurth), parasit on *Trifolium alexandrinum*.

Also known from Algeria.

1242. (3.) **Orobanche Mutelii** F. Schultz in Mutel Flor. Franc. II (1835), p. 353. — Beck in Monogr. Orobanch. in Bibl. Bot. IV, p. 95, tab. I, fig. 13. — Phelipaea Mutelii Reuter in DC. Prodrom. XI, p. 8. — Rchbch. Ic. XX, p. 89, tab. 150. — Phelipaea ramosa β. brevispicata Ledeb. Flor. ross. III, p. 313. — Phelipanche Mutelii Pomel Nouv. Mat. Flor. Atlant., p. 106. — Orobanche Muteliana Saint Lay. Cat. Flor. Rhone, p. 608. — Kopsia ramosa Dumort. β. Mutelii Caruel Flor. ital. IV. p. 359. — Phelipaea ramosa var. Mutelii Boiss. Flor. Or. IV, p. 499. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 799. — Aschers. Schweinf. Primit. Flor. Marmaric., p. 661 no. 538. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Stem slender, branched, rarely simple, 8—20 cm high, like the whole plant more or less glandular-hairy. Scales ovate to lanceolate, $5^1/_2$—10 mm long, sometimes almost glabrous. Inflorescence spicate or the lowest flowers distinctly pedicelled, many-flowered, usually rather loose; bracts oblong-ovate to lanceolate, acute, 6—10 mm long; bracteoles linear-subulate, usually exceeding the calyx-tube. Calyx 8—10 mm long, firmly membranous with more or less prominent nerves, divided to about the middle into 4 triangular or lanceolate, acuminate or caudate-acuminate, 3-nerved teeth. Corolla pallid below, otherwise bluish or lilac, 18—20 mm long; tube constricted about 6—8 mm above the base, then widened into the funnel-shaped throat, which is about $5^1/_2$ mm across, dorsal outline more or less curved; upper lipp 2-lobed, porrect lobes rounded; lower lip with 3 subequal, rotundate, crenulate-dendate or repand, ciliolate lobes. Filaments $6^1/_2$ mm long, glabrous or slightly hairy at the base; anthers glabrous or slightly villous at the base. Style glabrous or sparingly glandular-hairy; stigma almost funnel-shaped, obscurely 2-lobed, whitish or yellowish. — Flow. March to April.

M. ma. Marmarica: Matruqa; Alexandria. — **N. d.** Abu Roash.

Also known from the other parts of the Mediterranean region.

1243. (4.) **Orobanche aegyptiaca** Pers. Enchir. Bot. II (1807), p. 181. — Beck Monogr. Orobanch. in Bibl. Bot. IV, p. 100. — Phelipaea aegyptiaca Walpers Repert., Bot. III, p. 463. — Reuter in DC. Prodrom. XI, p. 9. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 800. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Orobanche pedunculata Viv. Plant. aeg. decad. (1831), p. 22. — Phelipaea pedun-

culata Walp. Rep. III, p. 459. — Orobanche indica Buchanan in Roxb. Flor. Ind. III, p. 27. — Phelipaea ramosa var. grandiflora Ledeb. Flor. ross. III, p. 313. — Phelipanche aegyptiaca Pomel Nouv. Mat. Flor. Atlant., p. 107. — Orobanche Delilei Decsne. in Ann. Scienc. Natur. 2. sér. IV, p. 201. — Orobanche ramosa Delile Illustr. Fl. d'Eg. not of Linn. — Phelipaea Delilei Walp. Rep. Bot. III, p. 459. — Phelipaea pulchella C. A. Mey. in Eichw. Plant. Casp., p. 17, tab. XVIII. — Boiss. Flor. Or. IV, p. 496. — Stem slender, branched, rarely simple, 15—50 cm high, like the whole plant more or less glandular-hairy. Scales lanceolate slightly glandular hairy or glabrescent, 5 mm to 1,5 cm long. Inflorescence spicate or the lowest flowers distinctly pedicelled, many-flowered usually rather loose; bracts lanceolate, glandular-hairy, obscurely-coloured; bracteoles narrow, shorter than the calyx. Calyx shortly campanulate, 4-toothed, somewhat membranous; teeth lanceolate-subulate from the base, as long as or longer than the tube pale yellow, with more or less prominent nerves. Corolla large 3 to 3,7 cm long, about the insertion of the stamens constricted, then widened into the funnel-shaped throat, outside glandular-hairy, bluish or violet; upper lip porrect, curvate and carinate in back, bilobed, with rotundate or acute laciniae; lower-lip equally trilobate; lobes large, orbiculate or ovate, rotundate at the tip, rarely acuminate, irregularly crenulate at the margin, rarely denticulate, densely pilose. Filaments inserted, in the constricted part of the corolla mostly 6 mm above the base in the lowest part sparingly pilose, in the upper part glandular-hairy or nearly glabrous. Anthers distinct, at the base densely lanuginose-pilose, acuminate, whitish. Ovary ellipsoidal. Style shortly densely glandular-hairy; stigma bilobed with hemispherical lobes, whitish. Capsule as long as the calyx-teeth, glabrous bivalved. — Flow. November to March.

M. ma. Mamarica; Matruqa; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **N. v.** Siut; Luksor.

Local name: halûk rîhy (Forsk.).

Also known from other parts of the Mediterranean region and Asia.

1244. (5.) **Orobanche cernua** Loefl. Iter hispan. (1758), p. 152. — Rchbch. Ic. Flor. Germ. XX, p. 107 tab. 187. — Beck Monogr. Orobanch. in Bibl. Bot. IV, p. 142. — Boiss. Flor. Or. IV, p. 514. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 805. — Aschers. Flor. Rhinocol., p. 802 no. 197. — Orobanche curviflora Viv. Plant. Aeg. Dec., p. 22 tab. 2 fig. 17. — Orobanche pogonanthera Reut. in DC. Prodrom. XI, p. 33. — Boiss. Flor. Or. IV, p. 515. — Orobanche Berthelotii Webb and Berth. Phyt. Canar. III, p. 155. — Orobanche media Desf. Flor. Atlant. II, p. 59. — Orobanche bicolor C. A. Mey.

in Ledeb. Flor. altaic. II, p. 458. — Stems solitary or fascicled, simple, stout, like the whole plant more or less glandular and cobwebby-pubescent, rarely glabrescent, up to 30 or 40 cm high. Scales ovate or ovate-lanceolate, acute or acuminate, entire or denticulate, 5—10 mm long. Spike cylindric, many-flowered, dense, rounded at the apex, up to 18 cm long. Bracts ovate to ovate-lanceolate, acute or acuminate, up to 1 cm long; bracteoles 0. Calyx split to the very base or almost so in front and on the back, 8—12 mm long, divisions-ovate, either entire or caudate-acuminate or more or less deeply bifid with usually unequal caudate-acuminate or acuminate teeth yellowish or blueish, sparingly glandular. Corolla 14—20 mm long, whitish and inflated below the insertion of the stamens, particularly after flowering, moderately constricted and often bent at the middle, slightly widened upwards into the bluish throat; limb small; upper lip emarginate or 2-lobed; lobes crenulate with glabrous margins; lower lip equally 3-lobed; lobes rounded or subacute, otherwise like those of the upper lip. Stamens inserted just below the middle of the tube. Filaments glabrous, rarely sparsely glandular hairy; anthers, glabrous or sparingly hairy. Style glabrous or sparingly hairy; stigma 2-lobed, white or whitish. — Flow. March to April.

M. ma. Abusîr; Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; el-'Arîsh. — **D. l. D. i. D. a. sept.** Not common as parasit on *Xanthium strumarium*, *Hyoscyamus muticus*, *Lycium europaeum* and *Nicotiana glauca*.

Local name: danûn (Wilkins; Schweinfurth); dânûn-el-âdirr (Ascherson).

Also known from Algeria, Tunisia, Cyrenaica, Spain, France, Italy, Arabia Petraea and Palestine.

1245. (6.) **Orobanche crenata** Forsk. Flor. aeg.-arab. (1775), p. LVIII and 113. — Beck Monogr. Orobanch. in Bibl. Bot. IV, p. 225. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 803. — Orobanche speciosa DC. Flor. Franc. VI, p. 393 not of Dietr. — Rchbch. Ic. XX, p. 91 tab. 161. — Orobanche grandiflora Bory and Chaub. Exped. de la Mor. Botan., p. 178 tab. 22. — Stems slender, solitary or fascicled rather simple, 50—70 cm high, or sometimes somewhat more, like the whole plant glandular-hairy or glabrescent, yellowish or bluish or violet, striate, in the lowest part sparingly squamate. Scales, especially the lowest ones crowded, distant higher up, lanceolate, or somewhat ovate-lanceolate, sparingly or densely glandular-hairy 2—3 cm long, bracteoles 0. Spikes cylindrical many-flowered, acuminate or rotundate at the apex, usually rather loose, except when young, with the lower flowers often remote. Calyx-parts distinct, ovate or rhomboid, bifid or bidentate; teeth small, long acuminate,

subulate or filiform at the apex, rarely lanceolate, teeth 1—3, 3-nerved, divergent, glandular-hairy and glabrescent, as long as the corolla-tube, rarely somewhat shorter. Corolla campanulate, above the insertion of the stamens widened, whitish or yellow with blueish veins, rarely purple-coloured, outside sparingly glandular hairy or glabrous; upper lip entire or plicate-margined with very broad subrotundate patent lobes; lower lip equally or subequally 3-lobed. Stamens inserted in the base, densely pilose, in the upper part often glandular-hairy. Anthers shortly acuminate often papillous-pilose. Ovary oblong-ovate. Style short, somewhat curved, sparingly glandular-hairy. Stigma bilobed. Capsule on both sides longitudinally dehiscent. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Common on Vicia Faba, Pisum, Cicer and Ervum.

Local name: halûk-metaby (Forsk.); diker-el-fûl (Aschers.); generally: halûk; zibb-el-ard; danûn (Ascherson).

Also known from the other parts of the Mediterranean region.

1246. (7.) **Orobanche versicolor** Schultz in Flora (1843), p. 129. — Beck Monogr. Orobanch. in Bibl. Bot. IV, p. 237. — Orobanche villosiflora F. Schultz in Flora (1845), p. 737 and p. 740. — Orobanche fragrans Griseb. Spic. Flor. Rum. II, p. 58. — Orobanche thapsioides Lo Jacono Criterii sui caratt. delle Orob., p. 50. — Orobanche pubescens Dum. d'Urville Enum Plant. Orient., p. 76. — Boiss. Flor. Or. IV, p. 507. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 804. — Sickenberg. Contrib. Flor. d'Eg., p. 265. — Stems mostly solitary, rarely fascicled, slender, simple, 10—50 cm high or sometimes somewhat more, bulbous-thickened at the base, often to 3 cm thick, brownish or purplish, striate, densely glandular hairy or often villous, in the lowest part densely with scales. Scales oblong, acuminate or subobtuse, often erose at the margin, more or less whitish-glandular-hairy, erect-patent, 1—2 cm long, often to 1 cm broad. Spikes cylindrical rotundate at the top, rarely shortly acuminate, many-and-dense-flowered, often at the base, rarely in the upper part loose-flowered. Flowers first erect-patent, than horizontally patent, 10—15 often to 20 mm long. Bracts narrow-lanceolate, whitish-glandular-hairy, as long as the flowers, rarely longer. Calyx-divisions distinct or shortly connate, ovate, entire or at the middle bidentate; teeth small and long acuminate, often filiform at the apex. Corolla whitish or yellow and inflated below the insertion of the stamens, particularly after flowering, moderately constricted and often bent at the middle, slightly widened upwards into the blueish throat; limb small; upper lip emarginate or 2-lobed;

lobes crenulate with glabrous margins; lower lip equally 3-lobed; lobes rounded or subacute, otherwise like those of the upper lip. Stamens inserted just below the middle of the tube. Filaments glabrous, rarely sparsely glandular hairy; anthers glabrous or sparingly hairy. Style long glandular-hairy. — Flow. March to April.

N. d. Rosetta; Damietta (Ehrenberg).

Also known from France, Greece, Cyrenaica, Syria, Palestine and Asia Minor.

1247. (8.) **Orobanche minor** Sutton in Trans. Linn. Soc. IV (1797), p. 179. — Beck Monogr. Orobanch. in Bibl. Bot. IV, p. 251. Reuter in DC. Prodrom. XI, p. 29. — Rchbch. Plant. Crit. VII, p. 30 tab. 652—653. — Rchbch. Ic. XX, tab. 1804. — Boiss. Flor. Or. IV, p. 512. — Orobanche nudiflora Wallr. Sched. Crit. I, p. 310. — Orobanche abyssinica A. Rich. Tentam. Flor. Abyss. II, p. 137. — Orobanche litorea Guss. Flor. Sic. Prodrom. II, p. 184. — Orobanche barbata Poir. in Lam. Encycl. IV, p. 621. — Stems solitary or fascicled, rather slender, simple, 8—50 cm high, like the whole plant more or less glandular-hairy. Scales crowded near at the base, distant higher up, ovate-oblong to lanceolate, 5—8 cm long. Spike cylindric, many- or (in weak specimens) few-flowered, usually rather loose, except when young, with the lower flowers often remote, up to more than 30 cm long. Bracts like the scales, but more acuminate; bracteoles 0. Calyx divided to the very base in front and on the back; divisions ovate to ovate-lanceolate, entire and long caudate-acuminate or 2-toothed, up to 1,5 cm long, 1-nerved. Corolla up to 2 cm long, yellow with purplish veins towards the limb, tubular, slightly constricted at the middle; upper lip 2-lobed or emarginate; lower lip equally or subequally 3-lobed; all the lobes rounded, plicate crenulate-dentate, glabrous along the margin. Stamens inserted 2—$2^1/_2$ mm above the base; filaments more or less hairy, at least below; anthers usually puberulous. Style mostly glandular-hairy; stigma 2-lobed, lurid-purple. — Flow. March to April.

M. ma. Alexandria-West and -East; Mandara; Abukîr. — **N. d.** Cairo; Abu-Za'hel.

Also known from Tropical Africa.

102. Lentibulariaceae.

Flowers hermaphrodite, zygomorphic. Calyx inferior, deeply 2—5-partite, regular or more or less 2-lipped, or the sepals free to the base. Corolla gamopetalous, 2-lipped, spurred, rarely saccate; tube very short; upper lip interior, entire to 2-lobed; lower entire to 2—3-lobed, usually with a vaulted, more or less 2-gibbous palate.

Stamens 2, anticous, attached to the base of the corolla, slightly converging in front of the stigma; filaments short, usually curved and asymmetrically thickened; anthers 2-celled; cells diverging, confluent, dehiscing by a common slit. Ovary superior, 1-celled; carpels 2, median; style simple, short or very short; stigma more or less distinctly 2-lipped, upper lip usually very small or obscure; placenta free central ovoid or globose, rarely reduced to a short basal protuberance, ovules numerous, sessile and closely packed, rarely few or only 2, anatropous. Fruit a 1-celled, few to-many seeded capsule, dehiscing irregularly or by 2—4 valves or circumscissile, very rarely one-seeded and indehiscent. Seeds very small, variously shaped; testa thin or spongy or corky, rarely exuding mucilage; endosperm 0; embryo undifferentiated or with obscure protuberances (rudiments of the primary leaves) at the often flat or slightly concave apex, rarely with a plumule of subulate primary leaves or a distinct cotyledon. — Perennial, rarely annual herbs, aquatic or terrestrial (but always in wet places), with peculiar, usually utricular, contrivances for the capture and digestion of small organisms. Leaves rosulate or scattered on stolons, entire or divided, uniform or sometimes heteromorphic. Inflorescences terminal or axillary, peduncled, racemose, simple, rarely sparingly branched, bracteate; lowest bracts usually barren, adpressed; bracteoles 2 or 0 at the base of the pedicels; flowers very small to large, often showy, yellow, purple or blue.

Species about 200, in all parts of the World.

510. **Utricularia** Linn.

Sepals 2, free or united at the base, persistent and frequently enlarged in fruit, equal or slightly unequal. Corolla 2-lipped spurred or rarely saccate; upper lip erect entire or emarginate to bifid; lower lip usually much larger than the upper, usually with a vaulted, often much raised and 2-gibbous palate and a spreading or deflexed entire, crenulate or lobed margin. Stamens 2; filaments almost straight or curved, short, often winged on the outer side; anthers dorsifixed, cells subdistinct or quite confluent; pollen globose, or depressed-globose, with or without few to many longitudinal slits and several pores. Ovary more or less globose, 1-celled; style distinct, short, persistent; stigma 2-lipped anticous lobe much larger than the often obscure posticous; ovules numerous, rarely few, sessile on the free central fleshy placenta, anatropous. Capsule usually globose, breaking up into 2 valves or dehiscing irregularly. Seeds globose, ovoid, lenticular, hemi-elliptic, truncate-pyramidal or prismatic, smooth, reticulate, tubercled, glochidiate or variously

winged, usually very small, exalbuminous. Embryo undifferentiated, with or without obscure protuberances (the beginnings of the primary leaves), rarely with a plumule of 9—12 more or less subulate primary leaves. — Rootless, aquatic or terrestrial or epiphytic herbs, nearly always provided with minute bladder-like organs for the capture and digestion of small organisms; annual or perennial with or without a resting season; the aquatic species reproducing themselves frequently from special resting buds (hibernacles) and the epiphytic sometimes from tubers. Terrestrial and epiphytic species: Primary axis developed, terminating with an inflorescence, producing at the base above the small primary leaves a rosette of foliage-leaves (rarely a solitary foliage-leaf) and non-axillary stolons, leaves and stolons showing no definite sequence and passing sometimes into each other. Stolons groning with inrolled or straight tips, either developed as rhizoids (growing downwards into the substratum and resembling roots) or creeping on or close to the surface of the substratum, often among moss and dwarf herbage, more or less branching and producing bladders, foliage-leaves and, from certain of their axils, flowering or barren (and then much stunted) shoots with a more or less developed basal tuft or rosette of leaves and stolons. Leaves petioled, normally always entire, linear to orbicular or reniform, rarely peltate, often decayed at the time of flowering, frequently producing bladders, stolons or adventitious shoots. Aquatic species: Primary axis arrested (according to Goebel), producing above or among the primary leaves one or several stolons. Stolons floating in still water or creeping on mud, rarely attached to stones and rocks in running water, often very long, growing with inrolled tips, branching; branches either all alike and resembling the primary stolons, producing from the flanks alternate or occasionally sub-opposite leaves and axillary or juxta-axillary inflorescences or branches heteromorphic, some of them growing downwards and producing only much reduced leaves and bladders. Leaves more or less divided into filiform or capillary segments; primary segments of the large-leaved species often imitating a whorl or half-whorl of pinnate leaves (rays), pinnae more or less 2-seriate on the sometimes broadened midrib, usually forked at the base, each division again divided, 1—2 outer rays sometimes replaced by a hyaline cordate or reniform or more or less divided auricle, resembling a stipule; all or certain leaves or the leaves of certain branches producing bladders, usually in the place of leaf-segments. Bladders globose to ovoid, stalked, with an oblique subterminal or subbasal mouth, closed by a membranous flexible valve and a turned-in thickening (chin) of the lower rim, sometimes produced into an upper or an upper and lower lip, ciliate, fimbriate or furnished with

stouter, variously shaped processes (tentacles). Inflorescences racemose, bracteate, peduncled, those of certain aquatic species held above water by a whorl of modified spongy leaves (floats); lower bracts often barren, adpressed; bracteoles 2, at the base of the pedicel, or 0.

Species over 100; mainly in the Tropics of both hemispheres.

A. Inflorescence held above water by a whorl of floats.
  I. Leaf-auricles large, hyaline, denticulate or more or less divided into hyaline lobes; capsule quite enveloped by the much enlarged closed and cuneately decurrent calyx . . . . . 1. U. inflexa.
  II. Leaf-auricles cut up into deeply and often repeatedly divided, rather rigid and rigidly ciliate segments capsule more or less exposed; calyx not or obscurely decurrent on the upward thickened pedicel . . . . . 2. U. stellaris.
B. Inflorescence without floats . . . . . 3. U. exoleta.

1248. (1.) **Utricularia inflexa** Forsk. Flor. aeg.-arab. (1775), p. 9. — Boiss. Flor. Or. IV, p. 3. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 670. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Del. Illustr. Flor. d'Eg., tab. 4. — Utricularia stellaris Willd. Spec. Plant. I, p. 113 partly. — A submerged, aquatic herb floating close to the surface. Stems up to over 30 cm long, filiform to more than 1 mm in diam. Leaves heteromorphic; normal leaves from a few lines to more than 1 cm apart, rarely subopposite, 3—6-partite, auricled, rays up to $2^1/_2$ cm long, finely filiform or dilated and up to over 2 mm broad, auricles solitary or paired, adpressed to the axis, orbicular-cordate to reniform with a narrow sinus, 6—9 mm across, hyaline, delicately ciliate-dentate; pinnae up to 9 mm long, usually furcate from near the base, ultimate segments capillary, minutely setose, with or without bladders; bladders usually solitary, from the lower part of a pinna, obliquely globose-ovoid, 2—1 mm in diam., mouth lateral, truncate, oblong, naked or with 2 setiform antennae; float leaves in a false whorl of 6 (rarely fewer or more) or irregularly approximate, $2^1/_4$—$5^1/_2$ cm below the lowest flower, linear-oblong to oblong in outline, terete, 20—22 mm long, $2^1/_2$—$5^1/_2$ mm in diam., with short or long pinnae near the apex. Raceme few- to many-flowered; peduncle below the floats 5—9 cm long or occasionally very short, slender; bracts broad-ovate, obtuse, up to almost 2 mm long; bracteoles 0; pedicels 2—$2^1/_2$ mm long, filiform and obliquely erect when in flower, then spreading or recurved, with gradually widening wings passing into the wide base of the mature

calyx. Sepals suborbicular-ovate or orbicular, obtuse, upper almost 5 mm, lower almost $2^1/_2$ mm long, much enlarged in the fruit, up to 10 mm in diam. Corolla yellow or white with purple veins $6—6^1/_2$ mm long; upper lip broad-ovate, 5 mm long, obtuse, entire; lower lip rotundate-subquadrate, $5^1/_2$ mm long; palate very large and gibbous; spur cylindric, obtuse, adpressed to the lower lip, up to $5^1/_2$ mm long. Anthers patelliform when open, 1 mm long. Ovary globose; style distinct, but very short; upper lip obscure; lower large, rotundate. Capsule globose, $5—5^1/_2$ mm in diam., enveloped by the compressed enlarged calyx; seeds short, prismatic, 4—5-angular, up to 0,5 mm in diam. and almost as high, all the angles marginate. Embryo slightly concave on the top face. — Flow. March to April.

N. d. Alexandria; Damanhur; Damietta; Mansura; Kafr Dowâr; Tanta; Zaqaziq; Qalyûb; Cairo, in irragation-canals and ditches.

Local name: hamûl.

Also known from Nubia, Kordofan and Senegalia.

1249. (2.) **Utricularia stellaris** L. fil. Syst., Supplem. (1781) p. 86. — Boiss. Flor. Or. IV, p. 3. — Wight. Ic. Plant. Or., p. 47 tab. 27. — DC. Prodrom. VIII, p. 3. — Kamiensky in Engler's Bot. Jahrb. XXXIII, p. 107. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 132 no. 671. — A submerged, aquatic herb floating near the surface. Stems up to over 30 cm long, filiform to more than 1 mm in diam. Leaves heteromorphic, normal leaves from a few mm to more than 1 cm apart, rarely subopposite, 4—6-partite, usually auricled; rays $1—2^1/_2$ cm long, finely filiform to linear (up to more than 1 mm broad), auricles orbicular-cordate in outline, $2—5^1/_2$ mm in diam., fringed or deeply and repeatedly divided, fringes or segments finely subulate and rather rigid, rigidly ciliate with the cilia often 2—3-nate, or the segments in cases of extreme division running out into capillary flexuous tips resembling the ultimate segments of the typical leaf-pinnae; pinnae 5—9 mm long, usually furcate from or near the base, ultimate segments capillary, minutely setose, with or without bladders; bladders from the angles of the divisions, 1 or 2 with each pinna, obliquely globose-ovoid, 1—2,5 mm in diam., mouth truncate, oblong, naked, almost closed by a flexible valve in the upper and the thickening of the rim in the lower part; floats in a false whorl of 4—6 (rarely fewer or more), usually 6—9 mm below the lowest flower, broad-ellipsoid to ovoid, $5^1/_2—9$ mm long with some reduced short pinnae near the apex. Raceme few- to 12-flowered; peduncle 3—18 cm long, slender; bracts broadly-ovate, obtuse, 2—3 mm long; bracteoles 0; pedicels $2—2^1/_2$ mm (rarely more)

long, filiform and obliquely erect during flowering, then gradually recurving, at last up to 6 cm long and more or less widened below the calyx. Sepals subequal, ovate-orbicular or orbicular, subobtuse to rounded, 2—$2^1/_2$ mm long. Corolla yellow, 5—$5^1/_2$ mm long; upper lip rotundate-ovate, up to $2^1/_2$ mm long; lower lip subquadrate up to over 5 mm long; palate very large and gibbous; spur subcylindric, obtuse, adpressed to the lower lip, up to 5 mm long. Anthers patelliform when open, 0,2 mm in diam., cells confluent; filaments filiform, narrowly winged, 0,3 mm long. Ovary globose; style distinct, short; lower stigmatic lips truncate-rotundate, upper lip 0. Capsule globose, 5—$5^1/_2$ mm in diam. Seeds box-shaped, 4—5-angular, 0,2—0,5 mm across, 0,1—0,3 mm high, all the angles more or less narrowly winged, top-face finely reticulate. Embryo not differentiated. — Flow. February to March.

N. d. Alexandria; Rosetta; Damanhur; Zaqaziq; Tewfikîye near Kafr Zayât; Qalyûb in ditches.

Local name: hamûl.

Also known from Tropical and South Africa, Madagascar, India and Australia.

1250. (3.) **Utricularia exoleta** R. Br. Prodrom. Flor. Nov. Holland. (1810), p. 430. — DC. Prodrom. VIII, p. 7. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 672. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Aschers. in Bericht. d. Deutsch. Bot. Ges. IV. p. 404. — Boiss. Flor. Or., Supplem., p. 339. — Kamiensky in Engler's Bot. Jahrb. XXXIII, p. 112. — Utricularia diantha Roem. and Schult. Syst. Veg. Mant. I, p. 169. — Boiss. Flor. Or. IV, p. 4. — Wight Icon. Plant. Or., tab. 1569. — Utricularia ambigua DC. Prodrom. VIII, p. 7. — An aquatic herb, floating in water or creeping on liquid mud. Stolons of varying length, much branched; branches often fascicled, from a few inches to almost 50 cm long, very slender, flat, green and leafy or bleached and almost naked. Leaves varying considerably in the degree of development, rarely more than 5 mm long, very sparingly dissected, usually one or several of the segments represented by bladders, or the whole leaf replaced by a bladder, normal segments delicately capillary, glabrous. Bladders obliquely globose-ovoid, rarely more than 1 mm long, mouth subapical, truncate with delicate branched cilia. Raceme 3—2-flowered or reduced to a single flower; peduncle slender, filiform, straight or flexuous, 5—6 cm long, rarely longer; bracts membranous, broad-obovate, truncate or rounded, 1 mm long, lowest 1 or 2 often barren; bracteoles 0; pedicels finely filiform, permanently obliquely erect, of very unequal length, the longest up to 9 mm long. Sepals equal, orbicular-elliptic, up to 2 mm long, membranous, scarcely

enlarging after flowering. Corolla yellow, $5^1/_2$—6 mm long; upper lip ovate-rotundate, entire or subentire, 2—$2^1/_2$ mm long; lower lip subquadrate, $2^1/_2$ mm long, slightly 2-lobed or almost entire; palate much raised, obscurely 2-gibbous, minutely papillose, margin spreading or deflexed; spur conic, obtuse, spreading, as long as or somewhat longer than the lower lip. Filaments curved, dilated upwards, 1 mm long; anthers ellipsoid, 0,5 mm long. Ovary subglobose; style very short, but distinct; upper stigma-lobe obscure; lower rotundate. Capsule globose, 2—5 mm in diam.; seeds numerous, lenticular, 1 mm in diam., with a thin corky or transparent, somewhat irregular, and often eroded wing around the margin, hilum excentric. Embryo lenticular, slightly emarginate, undifferentiated. — Flow. February to March.

O. Little Oasis; Dakhel; Great Oasis.

Also in Tripolitania and South Africa, Algeria, Portugal, and from India to China and Australia.

103. Globulariaceae.

Herbs or shrubs with perfect, irregular flowers, in globular, involucrate heads, with oblique, usually bilabiate corolla, 4 didynamous stamens inserted on the corolla-tube, confluent, 1-celled anthers, bifid stigma, a 1-celled, free ovary, with 1, pendulous, anatropous ovule; fruit an indehiscent utricle, with terete embryo in the axis of the albumen; radicle superior. — Calyx 5-cleft or-parted, equal or bilabiate, persistent. Corolla sometimes obliquely 1-lipped.

A small family widely distributed in the Mediterranean region.

511. **Globularia** Linn.

Calyx turbinate or campanulate at the base. Corolla with short tube, upper lip bipartite or 0, lower 3-parted or -dentate. Stamens inserted at the throat; anthers versatile. Style bidentate at the apex. Fruit included in calyx, oblong. — Genus distinguished by its globular heads of blue flowers.

A small genus widely distributed in the Mediterranean region.

1251. **Globularia arabica** Jaub. and Spach Illustr. Plant. Or. III (1847—1850), p. 76 tab. 260. — Boiss. Flor. Or. IV, p. 530. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 119 no. 807. — Aschers. Flor. Rhinocol., p. 802 no. 198. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 770. — Sickenberg. Contrib. Flor. d'Eg., p. 266. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 261 no. 240. — A shrubby plant, 30—50 cm high or sometimes somewhat more,

glaucescent, branches short. Leaves scattered, oblong-spathulate, entire or somewhat 3-toothed at the apex. Heads terminal; involucre leaves ovate, imbricated; receptacle conico-cylindrical, not stipitate; calyx-lobes thrice as long as the tube, lanceolate-subulate; corolla once and a half as long as the calyx; upper lip 0, lower one short-trilobed. — Flow. January to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta. — **D. i.** Gebel Ekhfên. — **D. a. sept.** Galala; Suez.

Local name: hendaqûq (Schimper); ghannûm (Schweinfurth).

Also known from Western Marmarica and Arabia Petraea.

104. Acanthaceae.

Flowers irregular. Calyx more or less deeply divided into 5 lobes segments or distinct sepals, the upper one often smaller and sometimes wanting or the two lowest united into one. Corolla with a long or short tube, the limb either two-lipped or of 5 spreading lobes, contorted or otherwise imbricate in the bud or expanded into a single lower lip. Stamens inserted in the tube, 4 in pairs or 2 only, the upper ones then reduced to staminodia or entirely wanting. Anthers 2-celled or 1-celled by the abortion of the other cell. Ovary superior, 2-celled, with 2 or more ovules or rarely a single one in each cell. Style simple, usually subulate, with an entire or 2-lobed stigma, the lobes not dilated and the upper one often reduced to a small tooth. Capsule opening loculicidally in two valves, usually elastically recurved and bearing the placentas along their centre. Seeds usually flat, attached to hooked processes from the dissepiment called retinacula, or the seeds globular and resting on cup-shaped dilatations or more papillae, sometimes almost inconspicuous. Albumen none. Embryo usually curved. — Herbs, shrubs or rarely trees. Leaves opposite, entire or rarely toothed, or in a few species lobed. Flowers axillary or terminal, in spikes racemes or clusters, more or less bracteate, the primary inflorescence centripetal, the secondary sometimes dichotomous and centrifugal. Bracteoles rarely wanting and sometimes large and leafy.

A large Order, diffused over both the New and the Old World, chiefly within the tropics, a very few species occurring in more temperate regions, either in the northern or the southern hemisphere.

A. Seeds hygroscopisally hairy . . . . . 1. **Blepharis.**
B. Seeds without hairs . . . . . 2. **Acanthus.**

512. (1.) **Blepharis** Juss.

Calyx sub-4-partite to the base; 2 anticous segments connate nearly to the tip; posticous segment lanceolate 3-nerved, usually longer than the anticous; 2 interior segments narrow, long or short. Corolla: posticous lip 0, replaced by a horny rim; anticous lip nearly flat, 3—5-lobed, bluish, white, or fading to yellowish. Stamens 4, subsimilar; anthers 1-celled, narrow-oblong, muticous, fringed with white hairs near the slit; filaments of 2 anticous stamens more flattened with rudiments of missing anther more developed; pollen longish-ellipsoid, with a few very narrow longitudinal smooth chinks not reaching the poles. Ovary with 2—1 ovules in each cell, glabrous; style glabrous, rarely with a few thin hairs below, branches 2, lanceolate; at the apex of the ovary on the posticous face are 2 hollows filled with glands. Capsule ellipsoid, flattened, woody, shining-brown, 2- (rarely 4-) seeded; seeds covered with rope-like hair-bundles, which on applying water unroll into very long 1-celled hairs each furnished with a spiral within. — Harsh prickly, or smooth slender, undershrubs without stellate or gland-tipped hairs. Leaves by the adjacent pairs being drawn together appearing in whorls of 4, outer pair in each whorl often smaller, sometimes very much smaller, or reduced and almost resembling stipules. Spikes of flowers strobilate; bract green, ovate or obovate, veined, nearly always spinous; bracteoles 2 or 0, linear, rarely lanceolate, 1-nerved, acute; in many spikes all the bracts except the highest sterile, so that these are commonly described as having solitary flowers.

Species 50, nearly all African, many in South Africa, a few extending through Arabia and the Orient region to India.

1252. **Blepharis edulis** Pers. Synops. II (1807), p. 180. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 118 no. 806. — Boiss. Flor. Or. IV, p. 520. — Lindau in Engler and Prantl Natuerl. Pflanzenfam. IV, fasc. IIIB p. 318 fig. 126 A. — Ruellia ciliaris L. Mant., p. 89. — Acanthus edulis Forsk. Flor. aeg.-arab., p. 114. — Acanthus Delilei Spreng. System. II, p. 819. — Acanthus tetragonus R. Br. in Salt Abyss. Plant. Append. XV. — Acanthodium spicatum Delile Illustr. Flor. d'Eg., p. 97 tab. 33 fig. 2. — DC. Prodrom. XI, p. 274. — (The synonym Ruellia ciliaris Linn., is doubtful, because Linnaeus description is to shoort!). — Grey pubescent or nearly glabrate. Stem short, rigid, branched. Leaves in fours at the sterile nodes; upper pair 5 by 1 cm, oblong or narrow-elliptic, sessile, spinous-margined; lower pair smaller but similar. Inflorescences strobilate, up to 9 cm long, sometimes short; bracts 2—2 $^1/_2$ cm long, ovate, acuminate, recurved, spinous, puberulous, more or less hairy on the

nerves without when young; bracteoles linear, 1—1,5 long. Posticous calyx-segment 1—1,5 cm long, broadly ovate, very hairy; 2 inmost calyx-segments 5—8 mm long. Corolla 2 cm long or rather more, blue. Capsule 5 cm long or rather more, 2-seeded. — Flow. February to March.

D. a. sept. Serapeum; Bîr-Suez; Suez, in deep sandy places; Wady; Gebel ahmar near Cairo on calcarious ground; Râs zafaraf. **D. a. mer.** Qoseyr; Wady Lekhuma.

Local name: shôk-ed-dâb (Schimper).

Also known from Tropical Africa and Arabia.

513. (2.) **Acanthus** Linn.

Calyx sub-4-partite to the base; 2 anticous segments connate high up or quite to the tip; posticous segment lanceolate or oblong, 3-nerved; 2 interior segments narrower. Corolla; posticous lip 0, represented by a thickened sinus at the level of insertion of the stamens; anticous lip nearly flat, 3—5-lobed; middle (anticous) segment outside in bud. Stamens 4, subsimilar; filaments glabrous; anthers 1-celled, oblong, muticous, fringed with white hairs; pollen ellipsoid with 3 narrow longitudinal chinks. Ovary with 2—1 ovules in each cell, glabrous; style glabrous; branches 2, subequal, short-lanceolate or very small. Capsule ellipsoid, woody, shining brown, 2-(rarely 4-)seeded; seeds discoid, without hairs. — Shrubs or small trees. Leaves pinnatifid or entire, prickly or not. Flowers usually large, in long or short spikes; bract ovate, spinous or unarmed, or 0; bracteoles 2, ovate, spinous or unarmed, or linear, or 0. A genus very close to Blepharis, which is absolutely separated by the hairy seeds.

Species 8 or 10, extending from South Europe and Africa to Malaya, Australia, and Polynesia.

1253. **Acanthus arboreus** Forsk. Flor. aeg.-arab. (1775), p. 115. — Lindau in Engler and Prantl Natuerl. Pflanzenfam. IV, fasc. 3 B, p. 319. — Acanthus polystachius Delile Cent. Plant. Afric., p. 62 tab. 1 fig. 2. — Acanthus pubescens Engler in Hochgebirgsflora Trop. Afrik., p. 390. — Pubescent or glabrate, stout shrub 1—6 m high. Leaves up to 22 cm by 9 cm (often only half this size), pinnatifid half-way down, or lobate with doubly spinous margin; petiole 1—2 cm long. Spikes 3—1, terminal, up to 9—20 cm by 5 cm, often pubescent or hairy; bracts $2^1/_2$ cm by 1 cm, ovate-lanceolate, acuminate, with many strong spines on the margin 5 mm long; bracteoles $2^1/_4$ cm by 4 mm, spinous on the margins. Posticous calyx-segment exceeding 2 cm in length, lanceolate, 3-nerved,

spine-tipped; anticous calyx-segment exceeding 2 cm in length, lanceolate, 2-nerved; 2 inmost calyx-segments 1,5 cm long, elliptic-lanceolate, mucronate. Corolla $2^3/_4$ cm long, rose or pale-purple. Capsule 1—1,75 cm. — Flow. February.

M. p. Rosetta, naturalized (Muschler).

Also known from Tropical Africa and Arabia.

Plantaginales.

A gamopetalous order, of uncertain relationship. Herbs, commonly acaulescent. Leaves mainly or wholly basal: blades typically 1-several-ribbed. Flowers perfect, monoecious or dioecious, in spikes. Calyx of 4 partially united or nearly distinct sepals. Corolla of 4 partially united, scarious and veinless petals. Androecium of 4 or 2 stamens. Gynoecium a compound superior pistil. Fruit capsular, commonly circumscissile.

105. Plantaginaceae.

Flowers usually regular. Sepals 4. Corolla small, scarious, with an ovate or cylindrical tube and 4 spreading lobes, imbricate in the bud. Stamens 4, or rarely fewer, inserted in the tube of the corolla and alternate with its lobes, usually long; anthers 2-celled, the cells parallel, opening longitudinally. Ovary free, 1-, 2- or 4-celled, with one or more ovules in each cell. Style simple, terminal, entire, with 2 opposite longitudinal stigmatic lines. Capsule opening transversely or indehiscent. Seed peltate, laterally attached, albuminous. Embryo straight or slightly curved, parallel to the hilum. — Herbs with radical tufted or spreading leaves, rarely branched and leafy. Flowers in heads or spikes or rarely solitary, on leafless axillary peduncles, each one sessile within a small bract.

A small Order, widely spread over the globe, but chiefly in the temperate regions of the Old World.

514. **Plantago** Linn.

Flowers hermaphrodite or polygamo-dioecious. Calyx-segments 4, subequal, or 2 outer larger. Corolla-tube cylindrical or ampulliform; lobes 4, spreading horizontally. Stamens 4, inserted in the corolla-tube; filaments filiform; anthers versatile. Ovary usually 2-celled, with 1 to several ovules in each cell. Capsule membranous, circumscissile at the middle or the base. Seeds 2 to several, cymbiform, with a ventral hilum; albumen fleshy; embryo straight or curved; radicle inferior. — Annual or perennial herbs, often acaulescent,

with the leaves in a basilar rosette. Leaves very various, usually entire. Flowers inconspicuous, spicate or capitate, each subtended by a single bract.

Species 200. Cosmopolitan.

A. Stemless plants with leaves all basilar, or caulescent with alternate leaves.
- I. Capsule with two 4—8 seeded cells. Seeds angled . . . . . 1. P. maior.
- II. Capsule 3-celled, cells 1-seeded, or rarely 1-celled, 1—2-seeded. Inner face of the seed grooved or boat-shaped.
  - a) Corolla and corolla-lobes glabrous.
    - 1. Perennials or peremnants.
      - α) Leaves lanceolate-spathulate . . . 2. P. albicans.
      - β) Leaves linear . . . . . 3. P. cylindrica.
    - 2. Annuals.
      - α) Leaves tapering to a clasping petiole 4. P. amplexicaulis.
      - β) Leaves not tapering to a clasping petiole.
        - * Bracts villous . . . . . 5. P. Bellardii.
        - ** Bracts glabrous.
          - † Villous-fleecy plants . . . 6. P. ovata.
          - †† More or less hirsute plants 7. P. notata.
  - b) Corolla-tube glabrous, lobes hirsute.
    - 1. Hirsute-plant . . . . . 8. P. Lagopus.
    - 2. Silky-canescent . . . . . 9. P. ciliata.
- III. Capsule 2-celled, cells sometimes bilocellate. Corolla-tube hairy, lobes glabrous. Flowers appressed to the axis.
  - a) Spikes ovate . . . . . 10. P. crypsioides.
  - b) Spikes cylindrical.
    - 1. Leaves entire . . . . . 11. P. crassifolia.
    - 2. Leaves pinnate-dentate . . . . . 12. P. Coronopus.

B. Stem leafy, leaves opposite. Corolla glabrous, the tube wrinkled transversely.
- I. Leaves linear to filiform.
  - a) Pubescent plants . . . . . 13. P. ramosa.
  - b) Glabrous plants . . . . . 14. P. exigua.
- II. Leaves linear to lanceolate.
  - a) Peduncles longer than the leaves . . . 15. P. stricta.
  - b) Peduncles as long as or shorter than the leaves.

1. Plants only 4—7 cm high . . . . . 16. **P. phaeostoma.**
2. Plants 20—40 cm high or more.
   α) Corolla-lobes lanceolate-acute . . 17. **P. Psyllium.**
   β) Corolla-lobes ovate . . . . . 18. **P. squarrosa.**

1254. (1.) **Plantago maior** L. Spec. Plant. I (1753), p. 163. — Boiss. Flor. Or. IV, p. 878. — Rchbch. Icon. XVII, tab. 77, fig. I to II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 846. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Icon. Flor. Dan., tab. 461. — Rootstock short and thick. Leaves erect or spreading, broadly ovate, often 8 or 10 cm long and nearly as broad, entire or toothed, glabrous or downy, marked with 7 (rarely 9 or only 5) prominent, parallel ribs, converging at the base into a rather long footstalk. Peduncles usually longer than the leaves, bearing a long, slender spike of sessile flowers, smaller than in the two following species. Sepals green in the centre, scarious on the edges. Stamens longer than the corolla, but shorter than in the two following species. Capsule 2-celled, with from 4—8 seeds in each cell. — Flow. October to March.

M. ma. Abusîr; El-Dekhêla; Mariut; Behig; Alexandria-West and -East; Abukîr; everywhere in deep sandy places. — **M. p.** Damietta, in sandy places. — **N. d. N. f. N. v.** Common in sandy places, in fields and on way-sides. — **O.** Siwa; Little Oasis; Farâfra; Great Oasis.

Local name: mesâsa (Delile); waraq sâbûn; lisân-el-kelb (Ascherson); generally: lisân-el-hamal; messâsa; lissân-hammel (Schweinfurth, Ascherson, Muschler).

Also known from all the other parts of the Mediterranean region, whole Europe, Asia and America.

1255. (2.) **Plantago albicans** L. Spec. Plant. I (1753), p. 165. — Boiss. Flor. Or. IV, p. 882. — Rchbch. Ic. XVII, tab. 78, fig. IV. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 847. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers. Flor. Rhinocol., p. 802 no. 205. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 802 no. 205. — Ic. Cav., tab. 124. — Sibth. and Smith Flor. graec., tab. 155. — DC. Prodrom. XIII, p. 705. — Perennial plant, 2—10 cm high, or sometimes somewhat more, acaulescent, densely tufted. Leaves sessile, linear, hairy, 2—9 cm long, obscurely 3-nerved. Peduncle elongated, more or less hairy. Spike long, cylindrical; bracts ovate, glabrous, as long as the calyx. Sepals 1 mm long, oblong, obtuse, hairy. Corolla-lobes small, ovate. Stamens short. Capsule 2-seeded. — Flow. January to May.

M. ma. Marmarica; Ras-el-Kenâ'is; Abusîr; Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; Qatîya; el-'Arîsh.

Local name: museyq (Ascherson).

Spread through the whole Mediterranean region to Persia, also known from Tropical Africa.

1256. (3.) **Plantago cylindrica** Forsk. Flor. aeg.-arab. (1775), p. 31. — Boiss. Flor. Or. IV, p. 882. — Rchbch. Ic. XVIII, tab. 79. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 848. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Aschers. Flor. Rhinocol., p. 802 no. 206. — Aschers. Flor. Sirbon., p. 813 no. 33. — An annual or perennial plant. Stemless or short-stemmed, silvery-fleecy. Leaves linear to linear-oblong, and oblong-lanceolate, tapering to a petiole, acutish with a callous tip, entire, nerves, concealed by fleece. Scapes terete shorter than the leaves, spikes often subsessile, oblong to cylindrical, 2—8 cm long; flowers as large as in the last species; bracts ovate, obtuse, with a herbaceous, hirsute strip along middle of outer surface, and scarious, villous-ciliate margin; calyx-lobes oblong-obtuse, herbaceous along the midrib, otherwise scarious, ciliate at the margin and the tip; corolla-lobes ovate-lanceolate, acute. — Flow. February to April.

M. ma. Alexandria; Sidi-Gâber; Ramle. — **M. p.** Qatîya to Gels Mohamedîye; el-'Arîsh. — **D. l.** Es-Sabrîgât; Beni-Selâma; Abu-Roash; Pyramids of Gîza; Pyramids of Zâwiyet-el-'Aryân; Pyramids of Saqqâra. — **D. i.** Sâlihîya; Ismailia; Nefîsh. — **D. a. sept.** Moqattam; Gebel ahmar; Great Petrified Forest; Helwân; common in the sandy desert.

Local name: berkhemy (Schimper); yenem (Ascherson).

Also known from Arabia Petraea and Palestine.

1257. (4.) **Plantago amplexicaulis** Cavan. Icon. Plant. II (1793), p. 22, tab. 125. — Boiss. Flor. Or. IV, p. 883. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 849. — Aschers. Flor. Sirbon., p. 813 no. 33. — Plantago lagopoides Desf. Flor. Atlant. I, p. 135, tab. 39. — Plantago Bauphula Edgew. in Hook. Journ. of Bot. II, p. 285. — Plantago salina Decsne. in DC. Prodrom. XIII, p. 720. — An annual small plant. More or less hairy, stemless or stems 5—15 cm high or sometimes somewhat more. Leaves lanceolate to linear-lanceolate, 5-nerved, entire, tapering to a clasping petiole. Peduncles axillary, longer or shorter than the leaves; spikes 1—2 cm long, globular to ovate and cylindrical; bracts glabrous, ovate-orbicular, hooded, obtuse, midrib green, margin and tip scarious; calyx glabrous, lobes round-ovate, the anterior with a green keel, the posterior all scarious; corolla-lobes ovate-oblong, acute. — Flow. February to May.

N. d. Alexandria; Damanhur; Zaqaziq; Tell-el-Kebîr. — **D. l.** Between Alexandria and Siwa. — **D. i.** Sâlihîya; Ismailia. — **D. a. sept.** Often in the Wadies.

Local name: khanânet-en-na'geh (Wilkinson).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Italy, Greece and Arabia Petraea.

1258. (5.) **Plantago Bellardii** All. Flor. Pedemon. I (1791), p. 82 tab. 85. — Boiss. Flor. Or. IV, p. 884. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 123 no. 850. — Sickenberg. Contrib. Flor. d'Eg., p. 268. — Rchbch. Ic. Flor. German., tab. 82. — Sibth. and Smith Flor. graec., tab. 146. — Plantago pilosa Pourr. Mém. Acad. Toul. III, p. 324. — Plantago holostea Lam. Illustr., no. 1667. — A small stemless annual plant, all the parts densely villouse. Leaves lanceolate or sometimes lanceolate-linear, acute, attenuate at the base, trinerved, entire or obsoletely paucidentate; peduncles terete, fleshy, erect, as long as the leaves or somewhat longer; spikes dense, ovate-oblong or cylindric, villose; bracts herbaceous villose lanceolate obtuse, as long as the calyx or rarely somewhat longer; calyx-limbs villose, oblong, the outer ones herbaceous, the inner ones acuminate; corolla glabrous, lobes oblong-lanceolate, acuminate. Capsule ovate with one-seeded cells; seeds ovate. — Flow. March to April.

M. p. Qatîya.

Also known from other parts of the Mediterranean region.

1259. (6.) **Plantago ovata** Flor. aeg.-arab. (1775), p. 31. — Boiss. Flor. Or. IV, p. 885. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 851. — Aschers. Flor. Rhinocol., p. 803 no. 207. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 250. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Plantago decumbens Forsk. Flor. aeg.-arab., p. 30. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 852. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Boiss. Flor. Or. IV, p. 885. — Annual or perennial (Plantago decumbens Forsk.!). — Villous-fleecy, stemless. Leaves narrow-linear to lanceolate, entire or obsoletely callous-toothed, tapering at base. Scapes as long as leaves or shorter; spikes-globular to ovate and oblong 8 mm to 3 cm long; bracts round ovate, glabrous, obtuse, midrib, herbaceous extending to the tip, margin scarious; calyx-lobes ovate, obtuse, scarious, glabrous or pubescent. Corolla-lobes ovate or round, mucronulate. — Flow. March to April.

M. ma. Marmarica: Matruqa; Bîr-Burdan; Mariut; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta; Sheyk-Zoyêd. — **D. l. D. i. D. a. sept.** Common on stony ground and in sandy places.

Local name: loqmet-en-na'ge (Forsk.); geneyme (Schweinfurth); djeneyme (Forsk., Schweinfurth).

Also known from Morocco, Algeria, Tunisia, Spain, Arabia Petraea and Syria.

1260. (7.) **Plantago notata** Lag. Gen. and Spec. nov. (1816), p. 7. — Boiss. Flor. Or. IV, p. 885. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 267. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 852. — Plantago syrtica Viv. Flor. Libyc., p. 7 tab. 3. — Plantago Olivieri Decsne. in Barneoud Mon. Plant., p. 37. — Plantago praecox C. A. Mey. Enum. Plant., p. 115. — An annual plant, 3—8 cm high, or rarely sometimes somewhat more. More or less hirsute, stemless, pale green. Leaves sessile, lanceolate to linear, 3—5-nerved, almost entire or furnished on either side with distant, linear, acuminate lobes and lobules, usually with a tuft of hairs at the base. Scapes declined, hardly as long as the leaves; spikes ovate to cylindrical, 1—3 cm long; bracts ovate-orbicular, fleecy at the back, herbaceous at the midrib, otherwise scarious, as long as the calyx; calyx fleecy at the base, lobes glabrescent, altogether scarious, ovate, obtuse; corolla-lobes buff-coloured, ovate-orbicular, mucronulate or muticous. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East.

Local name: geneyme (Muschler).

Also known from Algeria, Tunisia, Tripolitania, Cyrenaica, Western Marmarica and Southern Spain.

1261. (8.) **Plantago Lagopus** L. Spec. Plant. I (1753), p. 165. — Boiss. Flor. Or. IV, p. 886. — Rchbch. Ic. XVII, tab. 82 fig. IV—V. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 854. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Aschers. Flor. Rhinocol., p. 803 no. 208. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 663 no. 262. — Plantago lagopoides Viv. Flor. Libyc., p. 7 not of Desf. — Plantago eryostachya Ten. Flor. Nap., p. 13. — Plantago fornicata C. Koch in Linnaea XXI, p. 713. — Plantago glauca C. A. Mey. Enum. Plant., p. 115. — An annual plant, 30—60 cm high, rarely sometimes somewhat more. Stemless, neck hirsute. Leaves glabrescent to hirsute, lanceolate to oblanceolate, tapering to a petiole, 3—5-nerved, often 20 cm long, entire or obsoletely denticulate. Scapes angled-sulcate, 1—4-times as long as the leaves; spikes ovate to cylindrical, 1,5—7 cm long, dense; bracts ovate-lanceolate, acuminate, scarious except at the green midrib, villous above; calyx-lobes villous at the tip, the lateral one keeled; corolla-lobes ovate, acute or acuminate, more or less hairy along the nerve. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. Everywhere common in sandy and waste places, in fields and on stony ground. A very variable species in size and form of the leaves.

Local name: widne (Aschers.).

Also known from all the other parts of the Mediterranean region.

var. **lusitanica** (Willd.) Muschler comb. nov. — Plantago Lagopus var. maior Boiss. Flor. Or. IV, p. 886. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 124 no. 854. — Plantago lusitanica Willd. Spec. Plant. I, p. 644. — Often with short stems and in all parts larger than the type. — Flow. March to April.

M. ma. N. d. Common in waste places.

Local name: widne.

Also known from the other parts of the Mediterranean region and Mesopotamia.

1262. (9.) **Plantago ciliata** Desf. Flor. Atlant. I (1798), p. 137 tab. 39 fig. 3. — Boiss. Flor. Or. IV, p. 887. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 855. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Decsne. in DC. Prodrom. XIII, fasc. I p. 708. — Plantago bellidifolia Viv. Egypt. Decad., p. 4. — An annual plant, 3—8 cm high, or sometimes somewhat more. Silky-canescent, stemless or caulescent. Leaves obovate or oblanceolate-spathulate, acutish, tapering to a petiole. Peduncles thickish, as long as the leaves or shorter; spikes ovate to oblong, 8 mm to 2 cm long; bracts ovate, obtuse, green and hirtulous along the midrib, margin broad, scarious, long-ciliate; calyx-lobes ovate, scarious, long-ciliate at the margin; corolla-lobes lanceolate, long-villous at the outer surface. — Flow. March to April.

D. l. Sabrigât; Beni-Selâma; Kafr Hakîm; Abu Roash; Pyramids of Giza; Pyramids of Zawîyet-el-ʿAryân. — **D. a. sept.** Cairo; Wady Siut near Assiut; Bir Suez, abundantly; Suez.

Local name: holageyd (Klunzinger).

Also known from other parts of the Mediterranean region.

1263. (10.) **Plantago crypsioides** Boiss. in Flora Orient. IV (1879), p. 888. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 857. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Aschers.-Schweinf. Primit. Flor. Marmaric, p. 664 no. 264. — Plantago Coronopus var. bombycina Decsne. in DC. Prodrom. XIII, p. 732. — An annual small plant, 3—8 cm high, or sometimes somewhat more scabridulous. Leaves linear or lanceolate acute narrowed at the base trinerved entire or somewhat laciniate; scapes fleshy as long as the spikes, shorter than the leaves, often recurved; spikes villose, ovate, few-

flowered, dense; bracts and calyx-lobes coriaceous, herbaceous, hirsute, membranous-margined, carinate; corolla-tube appressed hairy, capsule 2-celled; ovules monosperm; seeds orate, biconvex. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariût; Montaza; Alexandria-West and -East. — **D. i.** Tell-el-Kebîr. — **D. a. sept.** Wady Khereyze.

Local name: deqîs (Ascherson).

Only known from Egypt.

1264. (11.) **Plantago crassifolia** Forsk. Flor. aeg.-arab. (1775), p. 31. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 858. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Aschers.-Schweinf. Primit. Flor. Marmaric, p. 664 no. 265. — Plantago maritima L. Spec. Plant. I, p. 165 partly. — Boiss. Flor. Or. IV, p. 889. — Sibth and Smith Flor. graec. tab. 148. — Rchbch. Ic. XVII, tab. 80 fig. II. — Plantago maritima Desf. Flor. Atlant. I, p. 138. — A perennial plant, 3—15 cm high, or sometimes somewhat more. Stemless. Leaves fleshy, linear, 3-nerved, entire or remotely denticulate, glabrous or sparingly papillose, hirsute or fleecy at the sheathing base. Scapes appressed-papillose-hairy, usually longer than the leaves; spike cylindrical, 2—6 cm long, rather loose; bracts ovate, concave, shorter than the calyx, narrow-margined; calyx-lobes obtuse, broad-margined, the keel of the posterior lobes green, expanded into a narrow, scarious wing; corolla-tube appressed-hirtulous, lobes ovate, acute; cells of capsule 2, each with 1 seed. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Abusîr; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta.

Local name: deqîs.

Also known from all the other parts of the Mediterranean region and Europe.

1265. (12.) **Plantago Coronopus** L. Spec. Plant. I (1753). p. 166. — Boiss. Flor. Or. IV, p. 888. — Rchbch. Ic. XVII, tab. 79 fig. V to VIII. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 664 no. 263. Plantago commutata Guss. Guss., Supplem. I p. 46. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 856. — Rootstock short and thick, scarcely branched. Leaves spreading, in a dense tuft, linear or linear-lanceolate, or pinnatifid with linear segments, more or less hairy, with scarcely prominent ribs. Spikes cylindrical, 2—5 cm long. The flowers rather smaller than in Plantago crassifolia Forsk.; the sepals broad and ciliate. Ovary with 4 cells, each with a single ovule, but it often happens that only 1 or 2 in each capsule attain their maturity. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. N. v. mer. O. D. l. D. i. D. a. sept. D. a. mer. Everywhere a common plant in waste and sandy places.

Local name: uddeyna (Ascherson).

Everywhere in the Mediterranean region, Middle Europe, Caucasia, Persia and Afghanistan.

var. **filiformis** (Boiss.) Muschler comb. nov. — Plantago Coronopus var. simplex Boiss. in Flor. Or. IV, p. 888. — Plantago filiformis C. Koch in Linnaea XXI, p. 709. — Leaves narrow linear entire or paucidentate; spikes abbreviate. — Flow. March to April.

M. ma. Abukîr; Alexandria-West and -East. — **M. p.** Rosetta; Damietta.

Also known from Transcaucasia and Persia.

1266. (13.) **Plantago ramosa** (Gil.) Aschers. Flor. Brandbg. III (1859), p. 92. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 862. — Sickenberg. Contrib. Flor. d'Eg., p. 269. — Plantago arenaria Wald. and Kit. Plant. rar. Hung. I, p. 51 tab. 51. — Boiss. Flor. Or. IV, p. 892. — Rchbch. Ic. XVII, tab. 85. — Plantago Cynops Sm. Prodrom. I, p. 103 not of S. — Plantago ramosa Aschers. var. aegyptiaca Boiss. Flor. Or., Supplem. p. 366. — An annual plant, 30—50 cm high, or sometimes somewhat more, pubescent; stem erect or diffuse, stiff branched. Leaves linear to filiform, 3—6 cm long, 1—2 mm broad, entire, margin somewhat revolute, base often villulose. Peduncles axillary, longer than the leaves, more or less umbelled; spikes ovate, 1 cm long, dense; bracts papillose-hirtulous at the back, the lowest ovate, tapering into a herbaceous cusp longer than the flowers, the upper-one spathulate-orbicular, membranous-margined; anterior calyx-lobes obliquely ovate, obtuse, posterior lanceolate, acutish, membranous; corolla-lobes, ovate-lanceolate, acute. — Flow. February to March.

N. d. Damanhur; Fûa; Er-Rahmânîye; Shirbîn; Mansûra; Benha-el-ʿAsl; Belbês; Merg; Cairo. — **O.** Little Oasis; Dakhel; Kharge. — **D. i.** Sâlihîya; Ismailia; Tell-el-Kebîr; Ramses-Station.

Local name: habb-el-barâghît.

Also known from Europe and other parts of the Mediterranean region.

1267. (14.) **Plantago exigua** Murr. Comm. Goett. (1778), p. 94 tab. 5. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 862. — Plantago pumila L. fil., Supplem. p. 131. — Boiss. Flor. Or. IV, p. 891. — Plantago Rosetana Poir. Dict., Supplem. IV p. 433. — An small annual glabrous herb. Stems gracious from a decumbent base erect flexuose, branched. Leaves subulate-capillary elongate, somewhat

revolute often hirsute at the base; heads globose few-flowered, minutely puberulous; bracts from a large base subulate, the lower ones as long as the spikes, the upper ones longer than the calyx; calyx-lobes oblong-lanceolate obtuse; corolla-lobes ovate-lanceolate, acute. — Flow. March to April.

N. v. Often cultivated and subspontaneous.

Local name: kemmûn daker (Schweinfurth); generally: kemmûn aswad.

Also known from India.

1268. (15.) **Plantago stricta** Schousb. Marocc. (1801), p. 35. — Boiss. Flor. Or. IV, p. 891. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 124 no. 859. — An annual plant, 20—40 cm high or sometimes somewhat more, minutely pruinose above, papillose-hairy at the joints; stem nearly simple. Leaves linear, entire. Peduncles from upper axils, often longer than the leaves; spikes ovate, long, scabridulous-hairy; bracts lanceolate to lanceolate-linear; calyx-lobes acutish; corolla-lobes lanceolate, acute. — Flow. March to April.

D. a. sept. Galala; Suez. — **D. a. mer.** Kene; Qoseyr.

Local name: qatuna (Muschler).

Also known from Tropical Africa, Arabia Petraea and Palestine.

1269. (16.) **Plantago phaeostoma** Boiss. and Heldr. Diagnos. Plant. Or., Ser. II fasc. IV (1859) p. 71. — Boiss. Flor. Or. IV, p. 892. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 124 no. 861. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 664 no. 266. — An annual plant, 4—7 cm high, or sometimes somewhat more, glandular-puberulent and papillose-hairy, branching from the neck, branches divaricate. Leaves linear, 1—2,5 cm long, entire. Peduncles as long as the leaves and heads, or shorter; spikes oblong, 1,4—2 cm long, dense, hirtulous; bracts oblong-linear, obtuse, all but the lowest shorter than the calyx; calyx-lobes oblong, obtusish, alike; corolla-lobes ovate, mucronate, with a buff-coloured throat. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Alexandria-West and -East.

Local name: bisr-el-qatûna.

Also known from Arabia Petraea.

1270. (17.) **Plantago Psyllium** L. Spec. Plant., ed. I (1753) p. 167. — Boiss. Flor. Or. IV, p. 891. — Rchbch. Ic. XVII, tab. 84 fig. VI. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 771. — Aschers. Flor. Rhinocol., p. 803 no. 210. — An annual plant, 20 to 40 cm high or often somewhat more, glandular-pubescent; stem erect, simple or thyrsoid-branched. Leaves linear-lanceolate to linear,

3—6 cm long, entire or remotely denticulate. Peduncles from the upper axils, about as long as the leaves; spikes ovate-spherical, 6 mm to 1,3 cm long, glandular-hairy; bracts ovate-lanceolate, acute or acuminate; calyx-lobes acuminate, corolla-lobes lanceolate, acute. — Flow. January to April.

M. p. El-'Arîsh; Sheykh Djubâra; El-Kharûba; Sheyk-Zoyêd.
Also known from all the other parts of the Mediterranean region and Persia.

1271. (18.) **Plantago squarrosa** Murr. Comm. Goett. (1781), p. 38 tab. 3 var. **brachystachys** Boiss. Flor. Or. IV (1879), p. 893. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 125 no. 863. — Plantago aegyptiaca Jacq. Ic. rar., tab. 28. — An annual plant, 20—30 cm high, or rarely sometimes somewhat more, papillose-hairy, branching from the neck; stems diffused or ascending, usually branching. Leaves somewhat fleshy, linear to linear-oblong, 2—4 cm long, 3—5 mm broad, often recurved. Peduncles axillary, as long as the leaves or shorter; 3—5 together; spikes pubescent, oblong to cylindrical, 1—2 cm long; the lower pair of bracts forming an involucre to the spike, sometimes elongated, oblong-lanceolate, recurved, somewhat narrowed above the dilated base; the upper one oblong, bluntish, as long as the calyx or longer; anterior calyx-lobes oblong-spathulate, somewhat oblique, posterior oblong, keeled; corolla-lobes ovate-oblong, acute. — Flow. March to April.

M. ma. Alexandria-West and -East. — **M. p.** Rosetta; Damietta.
Also known from Arabia Petraea and Palestine.

Rubiales.

Herbs, shrubs or trees. Leaves opposite, sometimes whorled: blades mainly entire. Flowers perfect, or rarely polygamous, solitary or in variously modified cymes. Hypanthium well developped. Sepals 3—6 or rarely 10, sometimes very small. Corolla of 3—6 or rarely 10 partially united petals. Androecium of as many stamens as corolla-lobes or twice as many, or rarely fewer. Anthers separate. Gynoecium of several united carpels. Ovary 1—10-celled. Styles united. Ovules 1-many in each cavity of the ovary. Fruit a capsule, a berry or a drupe.

106. Rubiaceae.

Flowers usually hermaphrodite, regular and symmetrical, rarely irregular or unsymmetrical, sometimes dimorphic. Calyx-tube adnate to the ovary; limb various. Corolla inserted on the ovary, various in form and aestivation. Stamens usually isomerous with the corolla-lobes, inserted at the mouth or throat or on the tube of the corolla;

filaments various; anthers usually oblong or linear, 2-celled, dehiscing by lateral slits towards the face, rarely connivent and dehiscing by apical pores; attached at the back or base. Disk at the top of the ovary, between the insertion of the corolla and that of the style, usually annular or cushion-shaped, sometimes inconspicuous or lobed. Ovary 1—12-celled, usually 2-celled; style solitary, entire, toothed cleft or partite; stigma terminal, various in form, entire or lobed; placentas on the septum or at one of the extremities of the cells. Ovules solitary or indefinite or a few in each cell, variously attached to or impressed on the placentas. Fruit various. Seeds albuminous; albumen copious or scanty, uniform or occasionally ruminated; embryo straight or curved.

Shrubs or trees, or in some genera herbs, occasionally scandent; rarely spinous. Leaves opposite or verticillate, simple, quite entire (or rarely repand-dentate); stipules inter- or intra-petiolar, various in shape, persistent or deciduous, entire, cut or lobed, free or connate or adnate to the leaf-base or petiole, absent (or foliaceous) in the tribe Galieae. Inflorescence various, bracteate or ebracteate; flowers usually tetramerous or pentamerous, but sometimes even decamerous; rarely the calyx is spathaceous or the corolla only trimerous.

One of the largest Natural Orders, chiefly tropical and subtropical, and most richly represented in America.

A. Ovules numerous . . . . . 1. **Oldenlandia.**
B. Ovules solitary.
I. Leaves stipulate; stipules unlike the leaves . . 2. **Gaillionia.**
II. Leaves exstipulate, verticillate, or the stipules foliaceous, like the leaves.
a) Fruit berry like . . . . . 3. **Rubia.**
b) Fruit dry, composed of one, oblong mericarp 4. **Callipeltis.**
c) Fruit dry, composed of twin, spherical, oblong or crescentic mericarps, rarely by abortion 1.
1. Flowers axillary, ternate . . . . . 5. **Vaillantia.**
2. Flowers in cymes or fascicles often paniculate, rarely nearly solitary. Fruit composed of twin hemispheres rarely by abortion 1 6. **Galium.**
3. Flowers in imbricated, 2—3-rowed spikes 7. **Crucianella.**

515. **Oldenlandia** Plum.

Calyx-tube globose obovoid turbinate or obconic-oblong; limb small, regular, deeply 4- or rarely 5-lobed, rarely with alternating teeth, persistent. Corolla salver-shaped, funnel-shaped, campanulate or subrotate, membranous; tube straight or somewhat curved; throat

glabrous or bearded; limb 4- or rarely 5-lobed, regular; lobes nearly linear lanceolate ovate oval or oblong, obtuse or acuminate, valvate in the bud. Stamens 4 or rarely 5, inserted at or rather below the throat of the corolla, exserted or included, glabrous; anthers oblong or linear, fixed at the back near the base; filaments short. Disk fleshy, inconspicuous. Ovary 2-celled; style filiform, included or exserted, entire or with 2 short linear branches, glabrous; ovules numerous. Capsule dehiscing longitudinally at or from the apex or dicoccous or tardily dehiscent, small, membranous or coriaceous. Seeds numerous, small, more or less angular or rarely orbicular, imbedded in the corrugations of, peltately attached to, the thick placentas; testa thin, smooth or minutely granulated; albumen fleshy or horny; embryo small, clavate. Herbs or shrubs with opposite leaves, acuminate or setose stipules adnate to the petiole or leaf-base, and small or delicate flowers arranged in terminal or axillary panicles or clusters.

A considerable genus found in the hotter parts of both the Old and New Worlds.

A. Flowers tetramerous.
  I. Corolla salver-shaped, exceeding the calyx . 1. **O. Schimperi.**
  II. Corolla funnel-shaped, scarcely exceeding the calyx . . . . . 2. **O. capensis.**
B. Flowers pentamerous . . . . . 3. **O. hedyotoides.**

1272. (1.) **Oldenlandia Schimperi** T. Anders. in Journ. Linn. Soc. Lond. V, Supplem. I (1803), p. 21. — Boiss. Flor. Or. III. p. 11. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 491. — Kohautia caespitosa Schnizlein in Flora XXV., Beibl. I no. 10 (1842), p. 145. — Hedyotis Schimperi Presl in Drège Plant. cap. and Bot. Bemerk., p. 85. — Oldenlandia retrorsa Boiss. Flor. Or. III, p. 12. — An ascending or decumbent rigid, glandular-scabrous perennial or annual, 30—60 cm high herb. Branches virgate, leafy at the base, sparingly so above, terete. Leaves linear (narrowly or broadly so), sessile, 1—2 $^1/_2$ cm long; stipules 3—1-cuspidate. Flowers tetramerous, 2 to 10 mm long, subsessile and pedicellate, in terminal corymbose cymes. Calyx-teeth lanceolate-subulate, about equalling the tube. Corolla salver-shaped; tube slender, several times the length of the calyx; limb small; lobes narrowly oval, subobtuse, 4 mm long. Capsule subglobose, subdidymous, truncate and loculicidally splitting at the apex, base sub-turbinate. Seeds angular. — Flow. January to April.

D. a. mer. Kene.

Local name: moswâk.

Also known from Tropical Africa, Arabia Petraea, Belutchistan and Scinde.

1273. (2.) **Oldenlandia capensis** L. fil. Supplem. (1781), p. 127. — Hedyotis capensis Lam. Illustr. I, p. 271 no. 1425. — Hedyotis sabulosa DC. Prodrom. IV, p. 424. — Hedyotis riparia DC. Prodrom IV, p. 424. — Oldenlandia riparia Pseud. Nomencl. Bot. ed. II, Vol. I p. 278. — A puberulous or somewhat scabrous much branched decumbent or diffuse leafy annual herb, 9—18 cm high or more. Branches tetragonal, spreading in all directions. Leaves narrowly linear, acute, sessile, 1—2,5 cm long; margins more or less revolute; stipules truncate or shortly ovate, sheathing, 2—3-setose. Flowers tetramerous, 0,1—0,3 mm long. Peduncles numerous, rarely only 2 together, axillary and terminal, clustered, 1-flowered, much shorter than the leaves, about the length of the calyx. Calyx sub-coriaceous; teeth lanceolate, hispid-scabrous on the margin, distant. Corolla white, scarcely or rather exceeding the calyx, funnel-shaped, deciduous; throat somewhat hairy; lobes obtuse. Stamens and style included. Capsule subglobose, 4-ribbid, 0,3 mm diameter, at length loculicidally bursting at apex. Seeds angular. — Flow. February to March.

N. v. mer. Islands of the Nile near Aswân, abundantly.

Also known from Tropical and South Africa, Madagascar and Syria.

1274. (3.) **Oldenlandia hedyotoides** Boiss. Flor. Or. III (1875), p. 11. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 490. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — Karamyschewia hedyotoides Fisch. and Mey. in Bull. Soc. Mosc. (1838), p. 767. — Theyodis octodon A. Kich. Flor. Abyss. I, p. 364. — Oldenlandia ranosissima Hohen. in Herb. Lenkoran. Um. Itin. 1838 not of Fischer. — A profusely branched nearly glabrous herb, 15—30 cm high. Branches angular, often rooting at the base. Leaves linear-oval, narrowed at both ends, subsessile, 1—3 by 0,2—4 mm, stipules pluri-setose, shortly sheathing. Flowers tetramerous, 0,1 mm long, very shortly pedunculate, clustered a few together in the axils of the leaves. Calyx with 4 lanceolate-subulate lobes and as many, or sometimes fewer, intervening narrow subulate teeth nearly as long. Corolla hardly exceeding the calyx, 4-fid, glabrous inside, white. Stamens and style included. Capsule coriaceous, subglobose, truncate, 4-ribbed, indehiscent. Seeds small, obtusely angular. — Flow. February to April.

N. d. Near Cairo, between Gîza and Gezire. — **N. v. mer.** Islands of the Nile near Aswân.

Also known from Tropical Africa.

516. (2.) **Gaillonia** A. Rich.

Calyx-tube oblong or oval; limb consisting of 2 foliaceous teeth or various, persistent. Corolla elongate funnel-shaped or shortly

salver-shaped; throat naked; lobes 4—5, ovate, spreading, valvate in the bud. Stamens 4—5, inserted at the throat of the corolla; filaments short, some sometimes almost obsolete; anthers oblong. Disk inconspicuous. Ovary 2-celled; style slender, with 2 short linear lobes; ovules solitary, attached about the middle to the septum, amphitropous. Fruit dicoccous, oblong; cocci indehiscent. Seeds oblong, subterete, marked with a longitudinal furrow on the ventral face; umbilicus ventral; radicle elongated, inferior. — Small rigid undershrubs with small opposite linear or subulate sessile leaves, sheathing usually bisetose stipules adnate to the base of the leaves, and small sessile or subsessile flowers spicate in dichotomous cymes or axillary and terminal.

A genus of a few species extending from North Africa to North West India.

1275. **Gaillonia calycoptera** (Decsne) Jaub. and Spach Illustr. Plant. Or. I (1843), p. 17 tab. 80. — Boiss. Flor. Or. III, p. 15. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 492. — Sickenberg. Contrib. Flor. d'Eg., p. 262. — Spermacocce calyptera Decsne in Ann. Scienc. Nat. Sér. 2, Vol. II, p. 267. — A rigid virgately branched undershrub, woody at the base, 30—60 cm high, nearly glabrous. Branches terete, slender, canescent. Leaves narrowly linear, rather fleshy, sessile 1 to 2 cm long, margins revolute; sheaths of the stipules very short, setae usually 2 or of the lower leaves obsolete, short. Flowers about 4 to 5 mm long, subsessile, solitary or few together, sheathed at the base by a pale calyx-like shortly 6-cleft involucre of 2—3 mm, arranged in simple and alternately branched terminal spikes; teeth of the involucre ovate, subacute. Calyx-teeth 2, foliaceous, pale, elliptical, narrowed at both ends, 2 mm long; the 2 other teeth minute or obsolete. Corolla shortly salver-shaped, exceeding the calyx; lobes 4 rarely 5, rather small. Stamens 4—5, 2—3 with short filaments, the other 2 subsessile. Style as long as the corolla-tube, glabrous, bifid with short slender lobes. Fruit, including the calyx-teeth, 5—6 mm long. — Flow. March to April.

D. a. sept. Cairo; 'Aîn Mûsâ; Wady Dakhel.

Local name: hedeneï (Schimper).

Also known from Tropical Africa and Arabia Petraea.

517. (3.) **Rubia** Linn.

Calyx-tube subglobose; limb obsolete. Corolla rotate or subcampanulate; lobes 5, rarely 4, valvate in the bud. Stamens 5, rarely 4, inserted on the tube of the corolla; filaments short; anthers oblong. Disk shortly cushion-shaped. Ovary 2-celled or towards the base or by abortion 1-celled. Style bilobed, short; stigmas

subcapitate; ovules solitary, attached at the base of the septum, erect, amphitropous. Fruit didymous, fleshy, 2—1-celled. Seeds suberect, athering to the pericarp; radicle inferior. — Scabrous herbs with verticillate quasi-exstipulate leaves and small flowers arranged in axillary and terminal cymes.

A genus of moderate size, occuring in the temperate and tropical regions of the world.

1276. **Rubia tinctorum** L. Spec. Plant. I (1753), p. 158. — Boiss. Flor. Or. III, p. 17. — Rchbch. Ic. XVII, tab. 133 fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 493. — A straggling herb, of a shining green, sometimes very dwarf, sometimes trailling over bushes and hedges to the lengt of several feet, clinging by means of short recurved prickles on the edges and midribs of the leaves, and sometimes on the angles of the stem. Rootstock and sometimes also the base of the stem perennial and creeping. Leaves 4 or 6 in the whorl, ovate-oblong or lanceolate, 2—$3^1/_2$ cm long, on very short stalks or nearly sessile. Flowers small, grecnish, in loose axillary or terminal panicles rather longer than the leaves. Corolla usually 3-lobed. Fruit a small black 2-lobed berry. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. Often cultivated in the gardens and sometimes subspontaneous.

Local name: fuwwa.

Naturalized everywhere in the Mediterranean region, in wild state known from Italy, Greece, Asia Minor, Arabia Petraea, Syria and Persia.

518. (4.) **Callipeltis** Stev.

Flowers perfect. Limb of the calyx obsolete. Corolla 4—3-parted; tube 0. Stamens 4, very short. Style bifid: stigmas globular. Ovary by abortion 1-carpelled. Fruit oblong, consisting of 1 mericarp. — Annual, dwarf herbs, with one, extra-axillary, sessile, 5—7-flowered cyme in each internode, flowers yellow, very short-pedicelled, the one in the fork naked, the rest subtended by a membranous, veined bract. Leaves in fours or twos, oblong-spathulate.

A small genus widely spread in the Mediterranean region and South Africa.

1277. **Callipeltis aperta** Boiss. and Buhse Aufzähl. (1856), p. 110. — Flor. Or. III, p. 84. — DC. Prodrom. V, p. 671. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 502. — A annual erect plant, 5—10 cm high or sometimes somewhat more. Bracts flat,

obovate, somewhat retuse or obtuse, subtending the glabrous or sparingly scabrous fruit. — Flow. March to April.

D. a. sept. Wady Sannur; Wady Araba.

Also known from Arabia Petraea and Persia.

519. (5.) Vaillantia

Flowers axillary, ternate, nearly sessile, the lateral staminate, the central perfect. Calyx-limb 0. Corolla rotate; that of staminate flowers 3-fid, of perfect 4-fid. Styles 2, with capitate stigmas. Ovules 2; seeds often by abortion 1. Fruit recurved, with three deflexed horns, and a fourth, erect horn or small spur near the base at the back of the mericarp, the back of the mericarp with 3, longitudinal, dentate crests. — Dwarf annual herbs, with leaves in fours, alternating with minute, sessile, yellow flowers.

A small genus widely distributed in the Mediterranean region and the Tropics.

1278. **Vaillantia hispida** L. Spec. Plant. I (1753), p. 1490. — Boiss. Flor. Or. III, p. 82. — Rchbch. Ic. XVII, tab. 131, fig. V. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 501. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 152. — Galium hispidum Gaertn. Fruct. I, p. 109 tab. 24. — An annual plant, 5—30 cm high, or sometimes somewhat more. Fruit crescentic, with three deflexed and no erect horn, hispid throughout, and furnished with a small, conical, obtuse spur near the base of the mericarp. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Italy, Greece, Palestine and Syria.

520. (6.) Galium Linn.

Calyx-tube subglobose; limb obsolete. Corolla rotate; lobes 4, valvate in the bud. Stamens 4, inserted on the tube of the corolla; filaments short; anthers short, exserted. Disk annular. Ovary 2-celled; styles 2, short; stigmas subcapitate; ovules solitary, attached to the septum, amphitropous. Fruit didymous, coriaceous, smooth rugose or tuberculate, glabrous or hispid. Seeds suberect; embryo curved; radicle elongated, terete, inferior. — Annual or perennial herbs, with angular branches, verticillate quasi-exstipulate sessile leaves and small hermaphrodite or polygamous flowers arranged in ebracteate terminal or axillary cymes.

A large genus of many critical species widely scattered over the world.

A. Fruit on erect or reflexed pedicels, not covered by reflexed leaves.
  I. Mericarps globular.
    a) Fruits 2—6 mm long, twin. Corolla white.
      1. Leaves with retrorse hooked prickles . . 1. **G. tricorne.**
      2. Leaves not with retorse hooked prickles . 2. **G. spurium.**
    b) Fruits 0,5—1 mm long. Corolla greenish-yellow . . . . . 3. **G. nigricans.**
  II. Mericarps oblong or ovate . . . . . 4. **G. murale.**
B. Fruit on recurved pedicels, covered by reflexed leaves 5. **G. lanatum.**

1279. (1.) **Galium tricorne** With. Bot. Arrang., ed. II Vol. I (1787—1793) p. 153. — Boiss. Flor. Or. III, p. 67. — Rchch. Ic. XVII, tab. 147 fig. 3. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 497. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Aschers. Flor. Rhinoc., p. 797 no. 132. — An annual plant, 30—60 cm high, or sometimes somewhat more, glabrous; stems flaccid, procumbent, retrorsely scabrous. Leaves in sixes an eights, linear, tapering, long-mucronate, margins and nerves with retrorse, hooked prickles. Cymes axillary, 3-flowered, shorter than the leaves; flowers perfect; fruit twin, mericarps sometimes 6 mm broad, minutely tubercled. — Flow. March to April.

M. ma. Mariut; Bringhi; Behig; Alexandria-West and -East; Mandara. — **M. p.** El-ʿArîsh. — **N. d. N. f. N. v. O.** Often in waste places and on way sides, rarely in sandy places.

Also known from the Mediterranean region, whole Europe, Caucasia, Mesopotamia, Persia and Belutshistan.

1280. (2.) **Galium spurium** L. Spec. Plant. I (1753), p. 154. — Boiss. Flor. Or. III, p. 69. — Galium infeste W. K. Plant. Hung. III, tab. 202. — Galium segetum P. Koch in Linnaea XVII, p. 33. — Galium aparinoides C. Koch in Linnaea XVII, p. 33. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — An erect annual herb, 40—50 cm high, or sometimes somewhat more, not swollen at the joints. Leaves in sixes and eights, linear-oblanceolate, 2—4 cm long. Peduncles axillary, longer than the leaves; flowers perfect; fruiting pedicels divaricate, straight; fruit small, 2 mm broad, glabrous or hispid. — Flow. March to May.

D. a. sept. Wady Omm Khurm, in the Northern Galala.

Also known from Arabia Petraea, Palestine and Syria.

1281. (3.) **Galium nigricans** Boiss. Diagnos. Ser. Plant. Orient. I, fasc. III (1849) p. 48. — var. **brachychaetum** Boiss. Flor. Or. III (1875), p. 74. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 498.

— An annual, small erect plant, 6—10 cm high, sometimes especially in shady places somewhat more; glabrous, drying black; stem thickish, divaricately branched from the base, corymbose. Leaves in eights, short oblong-spathulate, 3—5 mm long, mucronate, with retrorsely scabrous margins, the upper in pairs, narrower. Peduncles trichotomous; pedicels thickish, scarcely twice as long as the flower and glabrous fruit. — Flow. March to April.

M. p. Qatîya.

Also known from Arabia Petraea, Palestine and Syria.

1282. (4.) **Galium murale** (L.) All. Flor. Pedem. I (1785), p. 8 tab. 77 fig. 1. — Boiss. Flor. Or. III, p. 78. — Rchbch. Ic. XVII, tab. 14. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 499. — Boiss. Flor. Or., Supplem. p. 283. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — An annual erect plant from 10 cm up to 45 cm, rarely more; glabrous or hispidulous; stems tufted, flaccid, filiform. Leaves 3 – 5 mm long, the lowest in fours, the upper in pairs, obovate to oblong, tapering at the base. Peduncles out of axils, 1—3-flowered, recurved in fruit; fruit cylindrical, hirsute especially at the apex. — Flow. March to April.

M. ma. Alexandria-West and -East.

Also known from all the other parts of the Mediterranean region.

var. **alexandrinum** (Ehrenberg) Aschers. and Schweinfurth in Aschers.-Schweinf. Ill. Flor. d'Eg. 1887), p. 83 no. 499. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — A small plant with the aspect of *Tillaea alata* Viv., fruit with small setules. — Flow. March.

M. ma. Marmarica; Matruqa; Alexandria.

Only known from these localities.

1283. (5.) **Galium lanatum** Boiss. Flor. Or., Supplem. (1888) p. 283. — Galium Columella Ehrenberg in Boiss. Flor. Or. III, p. 81. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 500. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 651 no. 151. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — Valantia lanata Del. Ilustr. Flor. d'Eg., tab. 64 (in Barb. Herb. au Lev., tab. IV). — An annual small plant, 10—30 cm high, setulose-hispid, branching from the neck; stem gracious simple densely flowered. Leaves in fours minute, oblong, obtuse, narrowed at the base, longer than the spike; pedicels membranous; mericarp 2—3 mm in diameter striate with appressed, white apillae. — Flow. March.

M. ma. Marmarica: Matruqa; Alexandria-West and -East.

Only known from Egypt.

521 (7.) **Crucianella** Linn.

Flowers perfect, solitary or twin, with 3, scarious, green-vittate bracts at base, forming imbricated, 2—3 rowed spikes. Calyx-limb obsolete. Corolla funnel-shaped, with 4—5 lobes, ending in a caudiform, introflexed appendage. Style bifid; stigmas globular. Mericarps dry, oblong or oblong-linear. — Annual or perennial herbs, sometimes shrubby at base, flowers opening at night.

A small genus of only a few species, widely distributed in the Mediterranean region and Midde Europe.

A. Annuals.
- I. Spikes linear . . . . . 1. **C. herbacea.**
- II. Spikes ovate-oblong . . . . . 2. **C. membranacea.**

B. Perennials . . . . . 3. **C. maritima.**

1284. (1.) **Crucianella herbacea** Flor. aeg.-arab. (1775), p. 30. — Boiss. Flor. Or. III, p. 22. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 83 no. 494. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 651 no. 146. — Sickenberg. Contrib. Flor. d'Eg., p. 142. — Crucianella aegyptiaca DC. Prodrom. IV, p. 587. — An annual plant, 30—35 cm high or sometimes somewhat more. Lower leaves ovate-oblong, the rest linear, revolute. Spikes 3—5 cm long, dense, linear-cylindrical; outer bracts ovate-oblong, round-backed, scarcely keeled, lateral ones keeled, linear, shorter; corolla somewhat shorter than the bracts. — Flow. March.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Dakalla; Mariut; Montaza; Alexandria-West and -East.

Also known from Tunisia and Tripolitania.

1285. (2.) **Crucianella membranacea** Boiss. Diagnos. Plant. Or., Ser. I fasc. III (1849) p. 27. — Flor. Or. III, p. 23. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 495. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 759. — Aschers. Flor. Sirbon., p. 812 no. 18. — Aschers. Flor. Rhinocol., p. 797 no. 131. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — An erect annual plant, 20—50 cm high or sometimes somewhat more, branched from the base, erect. Leaves linear, white, acute, very scabrous. Spikes ovate oblong, short, at length elongated, 2—5 cm long, loose; bracts lanceolate, very acute, keeled, very broadly membranous, the outer ones longer, recurved-falcate; corolla-tube somewhat longer than the bracts. — Flow. February to March.

M. p. El-Gels-Mohamedîya; el-'Arîsh. — **D. i.** Abû Elfeïn; Wady-el-'Arîsh.

Local name: hozzeyl (Ascherson).

Also known from Arabia Petraea, Palestine and Syria.

1286. (3.) **Crucianella maritima** L. Spec. Plant. I (1753), p. 158. — Boiss. Flor. Or. III, p. 24. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 651 no. 147. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 496. — Aschers. Flor. Rhinocol., p. 797. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — Rubia marma Clus. Hist. II, p. 176 fig. 2. — Crucianella rupestris Guss. Prodrom., Supplem., p. 44. — A perennial herb. Stems procumbent, shrubby at the base, white. Leaves in fours, short, oblong-lanceolate, leathery, densely imbricated, at the base of the stems and along the branches. Spikes dense ovate to oblong-lanceolate, 20—40 cm long; outer bract ovate to ovate-elliptical, acuminate, inner ovate-oblong; corolla once and half as long as the bracts. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is (forma *rupestris!*); Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta; Port Said.

Along the Mediterranean coasts.

107. Caprifoliaceae.

Calyx-tube adnate to the ovary, the limb short, truncate or of 4 or 5 rarely more lobes or teeth. Corolla gamopetalous, inserted round the epigynous disk; lobes 4 or 5 rarely 3, imbricate in the bud. Stamens as many as lobes of the corolla, alternate with them, inserted in the tube; anthers versatile with parallel cells opening longitudinally. Ovary inferior, 2—5-celled or rarely 1-celled, with 1 or more pendulous ovules in each cell. Stigmas as many as cells, or united into one, sessile or on a single filiform style. Fruit an indehiscent berry, or rarely dry, 1—5-celled. Seeds 1 or more in each cell. Embryo in the axis of a fleshy albumen; radicle superior, cotyledons oval or oblong. — Trees, shrubs, or climbers, rarely herbs. Leaves opposite, usually without stipules, simple or rarely pinnate.

A rather small Order chiefly dispersed over the temperate regions of the northern hemisphere, with a very few tropical or southern species.

A. Stigmas several. Corolla spreading, with a very short tube.
  I. Leaves pinnate . . . . . 1. **Sambucus.**
  II. Leaves entire or palmately lobed . . . . . 2. **Viburnum.**
B. Style single. Corolla narrowed into a tube at the base 3. **Lonicera.**

522. (1.) **Sambucus** Linn.

Calyx-limb of 3—5 small teeth. Corolla with a very short tube and 3—5-lobes, spreading so as to appear rotate. Stamens

inserted at the base of the corolla. Ovary 3—5-celled with 1 pendulous ovule in each cell; stigma sessile, 3—5-lobed. Fruit a berry-like drupe, with 3—5 seed-like pyrenes, each containing a single seed. — Trees, shrubs, or tall herbs. Leaves opposite, pinnate. Flowers white or yellow, rather small, in large terminal corymbose cymes.

The genus is widely dispersed over Europe, temperate Asia, and North America.

1287. **Sambucus nigra** L. Spec. Plant. I (1753), p. 385. — Boiss. Flor. O. III, p. 2. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 82 no. 489. — Sickenberg. Contrib. Flor. d'Eg., p. 241. — A small shrub or tree, with the stem and branches full of pith. Leaf-segments 5—7, ovate, pointed, 5—8 cm long, regularly and sharply toothed, and nearly glabrous. Corymbs, 10—12 cm broad, several times branched, the first time into 4 or 5 but the branches less numerous at each subsequent division. The bracts very minute. Flowers white or creamcoloured. Fruits black. — Flow. March to April.

N. d. Often cultivated in gardens, sometimes subspontaneous.

Local name: beylâsân.

Common in Central and Southern Europe to the Caucasus, widely cultivated in the Mediterranean region.

523. (2.) **Viburnum** Linn.

Calyx minute, 5-toothed. Corolla rotate or somewhat campanulate, 5-lobed. Stamens 5. Ovary 1—3-celled, one of the cells containing a single ovule, the others empty. Drupe baccate, containing a single compressed bony nut. — Shrubs or small trees. Leaves lobed or undivided, the petioles sometimes winged. Flowers in terminal cymes, small, white; the marginal ones occasionally radiant and sterile.

A rather large and widely-spread genus extending further into the tropical regions of both the New and the Old World than any other of the family. The flowers, at first sight very much like those of Sambucus, have yet a more distinct tube, and the foliage is very different.

1288. **Viburnum Opulus** L. Spec. Plant. I (1753), p. 387. — Boiss. Flor. Or. III, p. 3. — Not generally a tall shrub when wild, but it will grow into a small tree, and is always glabrous in all its parts. Leaves 5 or 8 cm broad, divided to near the middle into 3 or sometimes 5 broad angular pointed lobes, which are usually coarsely toothed or again lobed; the slender leafstalks have 2 or

more sessile glands at the top, and 2 or more linear fringe-like appendages at the base. Flower-cymes 5—8 cm in diameter, outer flowers large, attaining often near 2,5 cm in diameter, but, having neither stamens nor styles, they are perfectly barren. Berries globular, of a blackish red. — Flow. March to April.

M. ma. Often cultivated in gardens, sometimes subspontaneous.
Also known from Europe, Russia Asia extending to the Arctic regions.

524. (3.) **Lonicera** Linn.

Shrubs, or tall climbers, with opposite entire leaves, and white, yellowish, pink, or red flowers, two or more together, in terminal or axillary heads. Calyx with a border of 5 small teeth. Corolla with a more or less elongated tube, and an oblique limb either 5-lobed, or in two lips, the upper one 4-lobed, the lower entire. Stamens 5. Style filiform, with a capitate stigma. Ovary 2- or 3-celled, with several ovules in each cell. Berry small, with one or very few seeds.

A considerable genus, spread over the temperate regions of Europe, Asia, and North America. It is really a natural one, and very readily distinguished from the adjoining genera by the flowers, although the two principal groups into which it is separable, the climbing true Honeysuckles and the erect shrubby fly Honeysuckles, are rather dissimilar in aspect.

1289. **Lonicera Caprifolium** L. Spec. Plant. I (1753), p. 246. — Boiss. Flor. Or. III, p. 4. — Jacq. Ic. Austr., tab. 357. — A climber, scrambling over bushes and trees to a considerable height, quite glabrous; the leaves ovate or oblong, glabrous on both sides, the uppermost pairs in the flowering branches united at the base, and the heads of flowers closely sessile within a pair of leaves united into a single broadly rounded perfoliate leaf; or the flowers are sometimes separated into two tiers, with a perfoliate leaf under each. Berries small and red. — Flow. January to March.

N. v. Siut, in gardens and subspontaneous.
Also known from South-Eastern Europe and Western Asia.

108. **Valerianaceae.**

Flowers hermaphrodite or occasionally unisexual. Calyx-tube adnate to the ovary; limb persistent and membranous or coriaceous or deciduous and resembling feathery pappus, equal or unequal. Corolla gamopetalous, tubular, inserted on an epigynous disk, regular or irregular, sometimes calcarate at the base; lobes 3—5, usually 5, obtuse, imbricated (cochlear) in aestivation. Stamens 1—4, usually 3—4, the posterior one and often one of the lateral ones wanting.

inserted on the tube of the corolla, alternating with its lobes; filaments separate, incurved in bud, exserted in flower. Anthers introrse, 2-celled, incumbent, longitudinally dehiscing. Ovary inferior, 3-celled; two cells empty and often smaller than the third fertile one; ovule solitary, pendulous from the apex of the cell, anatropous; style simple, filiform; stigmas 2—3, free or connate. Fruit indehiscent, dry, 1—3-celled, 1-seeded; seed pendulous, exalbuminous; embryo straight, radicle superior, short, cotyledons oblong, rather thick. — Herbs, usually annual. Leaves opposite, entire dentate or pinnatifid, exstipulate, radical ones often rosulate. Flowers bracteate, but little tending to be capitate.

An Order of moderate size, widely scattered and chiefly occuring in temperate climates.

A. Calyx-limb involute in flower, expanded in fruit to a feathery pappus . . . . . 1. **Centranthus**
B. Calyx-limb dentate or crown-like in fruit, regular or irregular . . . . . 2. **Valerianella.**

525. (1.) **Centranthus** Neck.

Calyx-limb involute during flowering, expanded in fruit into a feathery pappus. Corolla tubular-funnel-shaped, more or less long-spurred at base, 5-lobed. Stamen 1. Fruit 1-celled. — Perennial, glabrous, glaucescent herbs, with pink flowers in thyrsoid panicles.

A small genus widely distributed in the Mediterranean region.

1290. **Centranthus macrosiphon** Boiss. Diagnos. Plant. Or., Ser. I fasc. 3 (1843) p. 57. — Aschers.-Schweinf. Ill. Fl. d'Eg., Supplem. p. 759. — An annual glabrous herb, 20—30 cm high, or sometimes somewhat more; stems erect, fleshy, fistulous, glaucous. Leaves ovate, the lower ones shortly petioled entire or obsolete dentate, obtuse, the upper ones sessile acute, dentate, mor or less incised at the base with linear lobes; panicles at the tup of the branches corymbosed densely flowered; bracts small linear membranous-margined; flowers deeply rose-coloured, corolla-tube thrice as long as the fruit; spur one third as long as the tube; setae of the pappus blackish, plumose, in the lower part somewhat connate. — Flow. March.

M. ma. Often cultivated in Alexandrian gardens and sometimes naturalized.

Also known from Spain.

526. (2.) **Valerianella** Haller.

Calyx-limb persistent, in the flowering stage not involute, often accrescent, dentate or entire, membranous or coriaceous, sometimes

obsolete. Corolla funnel-shaped, slender, usually with a short tube and a slight gibbosity at the base; limb subequal, 5-lobed. Stamens 3, inserted about the middle of the corolla-tube. Stigma 3-fid. — Annuals, dichotomously divided. Leaves entire or the upper ones often toothed or incise-pinnatifid. Flowers sessile, solitary, at the apex of the branches crowded in subfastigiate or subglobose bracteate cymes.

A genus of several species, chiefly occurring in cultivated ground, with a wide distribution especially over the temperate regions of the northern hemisphere.

A. Fruits all of one kind, oblong-cylindrical, or ovate-oblong; sterile cells much broader than the fertile one . . . . . 1. **V. Szovitsiana.**

B. Fruits of one kind, large, top-shaped, grooved in front, the sterile cells about as broad as the fertile one 2. **V. Petrovichii.**

1291. (1.) **Valerianella Szovitsiana** Fish. and Mey. Ind. Hort. Petrop. III (1823), p. 48. — Boiss. Flor. Or. III, p. 101. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 83 no. 503. — Sickenberg. Contrib. Flor. d'Eg., p. 242. — Ic. Koch, tab. XI fig. 17. — Valerianella Aucheri Boiss. Diagnos. Plant. Or., Ser. I fasc. III, p. 58. — An annual plant, 30—40 cm high, or sometimes somewhat more. Hispidulous or glabrescent. Leaves oblong-linear. Flowers of forks solitary; cymes short, onesided; fruits glabrous or hispidulous, white, marked in front by an oblong-ovate pit; calyx-limb oblique, short, tubular-auricled, reticulate, with a lateral, linear, horizontal, somewhat recurved lobe, entire or denticulate at the tip, as long as the fruit, and a very small accessory lobe. — Flow. March to April.

D. a. sept. Galala.

Also known from Arabia Petraea and Palestine.

1292. (2.) **Valerianella Petrovichii** Aschers. in Rohlfs Kufra (1881), p. 526. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652. — Prodrom. Flor. Libyc., p. 119 tab. VIII. — Fedia coronata Viv. Flor. Libyc., p. 2 not of Vahl. — Valerianella coronate Coss. Bull. Soc. Bot. Franc. XII (1865), p. 278 not of DC. — Valerianella discoidea Coss. Bull. Soc. Bot. Franc. XII (1865), p. 48 not of Loisl. — An annual plant, 10—30 cm high, or sometimes somewhat more, pubescent below. Lower leaves oblong, upper ones linear, dentate or pinnatifid at the base; fruit villous, marked with a deep, oblong-linear groove in front; calyx-limb cupshaped, 3 mm broad, reticulate, with 6, ovate, acute lobes half its length, ending in hooked awns. — Flow. March to April.

M. ma. Matruqa.

Also known from Spain.

109. Dipsacaceae.

Flowers hermaphrodite, irregular or subregular, capitate. Calyx-tube tubular, adnate to the ovary at least at the base or narrowed at the apex into a neck adnate to the base of the style; limb superior, cup-shaped subentire or dentate, sometimes terminating in setaceous lobes. Corolla inserted at the top of the calyx-tube, gamopetalous, tubular, more or less funnel-shaped, 4—5-lobed; lobes usually unequal, imbricated in aestivation; the outer corollas often radiate. Stamens 4, inserted on the corolla, alternating with its lobes; filaments (in Tropical African species) free, incurved in the bud, sometimes didynamous, 2 sometimes without anthers; anthers introrse, 2-celled, deciduous; cells dehiscing longitudinally; pollen smooth, 4-sided. Ovary 1-celled, included within the tube of the calyx; ovule solitary, pendulous, anatropous; style terminal, filiform, simple bidentate or dilated. Fruit 1-seeded, dry, indehiscent, within the tube of the calyx, surrounded by the involucel; seed inverted; testa thinly membranous; albumen scanty, fleshy; embryo straight, in the axis of the albumen, cotyledons subfoliaceous, radicle short, superior. — Annual biennial or perennial herbs or sometimes shrubby; stem and branches nodose-articulated; leaves opposite or very rarely verticillate, simple, entire dentate or pinnate-lobed, sessile and amplexicaul, often connate at the base or petiolate, exstipulate; heads involucrate or naked; each flower enclosed in a calyx-like persistent involucel.

An Order of rather small size found chiefly in the Mediterranean region and at the Cape of Good Hope.

A. Calyx-limb subcyathiform or discoid . . . . . 1. **Cephalaria.**
B. Calyx-limb setose or pappose-plumose.
I. Calyx deciduous . . . . . 2. **Pterocephalus.**
II. Calyx peristent . . . . . 3. **Scabiosa.**

527. (1.) **Cephalaria** Schrad.

Calyx-tube adnate to the ovary; limb cup-shaped or disk-like. Corolla funnel-shaped, 4-fid; lobes somewhat unequal, of moderate length. Stamens 4. Ovary inferior; stigma obliquely dilated. — Erect perennial herbs without prickles or setae, and often elongated branches. Leaves opposite, entire dentate or pinnatifid. Flowers capitate, inserted on a common paleaceous receptacle. Heads involucrate with imbricating scales shorter than the paleae of the receptacle. Involucel 4-sided.

A genus of several species, occurring chiefly in the Mediterranean region and at the Cape of Good Hope.

1293. **Cephalaria syriaca** (L.) Schrad. Akad. Goett. (1814), p. 316. — Boiss. Flor. Or. III, p. 120. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 504. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem., p. 760. — Aschers. Flor. Rhinoc., p. 797 no. 133. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — An annual plant, 50 cm to 1,50 m high, bristly; stem stiff, trivaricately branched above. Leaves sessile or nearly so, the lower ones oblong-lanceolate, entire or serrate, often 10—15 cm long, the upper ones linear, entire. Peduncles long, stiff, or heads in forsk sessile; heads ovate, 2 cm long; bracts and pales obovate, ending abruptly in a long awn; involucel hirsute, truncate, with 4 awns, much longer than the calyx-limb, and 4 intermediate, half or less than half as long. — Flow. March to April.

M. ma. Mariut; Alexandria-West and -East; Abukîr. — **M. p.** Qotîya; Seth.

Also known from Syria.

528. (2.) **Pterocephalus** Vaill.

Tube of involucel 8-grooved or striate, ending in minute teeth or a shorth crown. Calyx-limb short-stipitate, with 12—24, plumose awns. Corolla 5-fid. Receptacle hairy or naked. — Herbs or shrubs.

A small genus widely distributed in the Mediterranean region.

1294. **Pterocephalus papposus** (L.) Halascy in Consp. Flor. Graec. I (1901), p. 762. — Pterocephalus involucratus Spreng Syst. I. p. 384. — Boiss. Flor. Or. II, p. 148. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 507. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 155. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem., p. 768. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — Pterocephalus brevis Coult. Mém. Dipsac., p. 44, tab. I, fig. 16. — Pterocephalus Coulteri Boiss. Diagnos. Plant. Or., Ser. I fasc. X, p. 77. — Scabiosa papposa L. Spec. Plant. I, p. 146. — Scabiosa involucrata Sibth. and Smith Flor. Graec. I, p. 84. — An annual plant, 15—40 cm high or sometimes somewhat more, pubescent and hairy, viscid; stems forked, much branched. Leaves pinnatisect into oblong-linear, pinnatifid, decurrent lobes. Involucre as long as or longer than the pink to blackish-purple flowers, larger leaves 2—4-lobed at the base; involucel truncate, ending in a small, membranous crown; awns 12, once and a half as long as the tube. — Flow. March to April.

M. a. Marmarica; Matruqa; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **D. a. sept.** Basatîn.

Also known from Greece, Arabia Petraea, Palestine, Syria, Mesopotamia and Persia.

529. (3.) **Scabiosa** Linn.

Herbs, either annual or with a perennial stock, becoming shrubby in some exotic species, without prickles. Heads of flowers hemispherical or globular, with an involucre of small, green, not prickly bracts. Involucels various. Corolla 4- or 5-lobed, often oblique. Ovary and fruit crowned by the little cup-shaped calycine border, with 4, 5, or more teeth or bristles.

This, the principal genus of the family, belongs chiefly to the Mediterranean region, a few species extending over the rest of Europe and temperate Asia.

A. Whole length of the tube of the involucel 8-ribbed.
  I. Leaves of the involucre shorter than the head 1. **S. arenaria.**
  II. Leaves of the involucre longer than the head 2. **S. eremophila.**
B. Tube of the involucel not ribbed below, deeply 8-pitted above . . . . . 3. **S. Aucheri.**

1295. (1.) **Scabiosa arenaria** Forsk. Flor. aeg.-arab. (1775), p. LXI. — Boiss. Flor. Or. III, p. 135. — Del. Illustr. Flor. d'Eg., tab. 63 fig. 8. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 505. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 154. — Aschers. Flor. Sirbon., p. 812 no. 19. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — Aschers. Flor. Rhinocol., p. 798 no. 134. — An annual herb, 20—30 cm high or rarely somewhat more, puberulent-scabrous. Root-leaves oblong, pinnatipartite or cut into oblong-linear lobes; lobes of upper leaves filiform. Leaves of the involucre shorter than the head; corollas white, radiating; tube of the involucel short, ribs and margin of the crown ciliate; awns of calyx 5, twice as long as the crown. — Flow. March to April.

M. ma. Mamarica: Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Gels-Mohamedîya; el-ʿArîsh. — **D. i.** Gebel-Ekhfên.

Also known from Algeria, Tunisia, Tripolitania and Arabia Petraea.

1296. (2.) **Scabiosa eremophila** Boiss. Diagnos. Plant. Orient., Ser. I fasc. X (1849) p. 79. — Flor. Or. III, p. 135. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 506. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — A small annual plant, 4—10 cm high, rarely somewhat more, puberulent. Root-leaves oblong-linear, entire or pinnatifid at the base, upper ones linear, entire. Leaves of the involucre longer than the head; crorollas flesh-coloured, not radiating; tube of the involucel hemisperical, puberulent; margin of the crown ciliate;

awns of calyx 2—6, as long as or shorter than the crown. — Flow. March to April.

M. ma. Abusîr; Montaza; Alexandria-West and -East. — **M. p.** Rosetta; Damietta.

Also known from Arabia Petraea.

1297. (3.) **Scabiosa Aucheri** Boiss. Diagnos. Plant. Or., Ser. I fasc. II (1849) p. 111. — Flor. Or. III, p. 145. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — An annual small plant, 2—10 cm high, or sometimes somewhat more, pubescent; stems simple or branching. Leaves linear-lanceolate, lower undivided, upper with a pair of small lobes at the base. Involucre longer than the flesh-coloured flowers; tube of the involucel hairy, shorter than the pits: crown 20—24-nerved; awns included. — Flow. March.

D. i. Desert-el-Tîh.

Also known from Arabia Petraea.

Cucurbitales.

Herbs or rarely shrubs or trees. Leaves mainly alternate: blades simple, entire, toothed or lobed. Flowers perfect, monoecious or dioecius, regular or irregular. Hypanthium well developped, surrounding the ovary and adnate to it. Calyx of usually 5 distinct or partially united sepals. Corolla of 5 rarely 6 distinct or usually partially equally or unequally united petals. Androecium of 3—5 stamens or rarely of only one stamen. Anthers distinct or sometimes connate. Gynoecium of 2—5 or rarely more united carpels. Ovary inferior. Styles united. Fruit a capsule or a berry, sometimes a pepo.

110. Cucurbitaceae.

Flowers usually unisexual. Calyx-tube adherent to the ovary and produced above it into a campanulate or tubular 5-toothed or 5-lobed free portion, which forms the whole calyx in the males. Petals 5, free or united in a lobed corolla, adnate to the free part of the calyx-tube and usually so confluent with it as to appear continuous with it between its teeth or lobes. Stamens 3 or 5, inserted on the calyx-tube below the petals, the filaments free or united; anthers separate or confluent into a waved or curved mass. Ovary usually 1-celled when very young, either with 3 or (rarely 4 or 5) parietal placentas soon thickening and meeting in the axis, dividing into as many or twice as many cells, or with 1 placenta and remaining 1-celled. Style 1, entire or 3-lobed, or rarely 3

almost distinct styles; stigmas 3 (rarely 4 or 5), entire or lobed. Ovules 1 or more to each placenta. Fruit succulent or coriaceous, often with a hard rind, indehiscent or bursting irregularly or rarely opening in 3 valves. Seeds usually flat, often obovate or oblong, without albumen; testa coriaceurs or bony. Embryo straight; cotyledons large, usually notched at the base, with a short radicle. — Herbs weak, prostrate or climbing by means of tendrils arising from the sides of the stems near the petioles, generally more or less scabrous or hispid. Leaves alternate, without stipules, usually palmately veined and angular, lobed or divided. Flowers unisexual in all the Australian genera, on axillary peduncles, the males usually in racemes or clusters, or sometimes solitary, the females generally solitary.

A considerable Order, chiefly tropical, and more especially African, with, but very few species extending into Europe or northern Asia. It is very easily recognised, as well by its foliage and tendrils as by the structure of the flowers. The only Order at all allied to it is that of the Passifloraceae or Passion-flowers, almost all of them American, and chiefly tropical, but of which some species are well known among our greenhouse or stove plants. To the Cucurbitaceae belong the Cucumbers, Melons, Watermelons, Gourds, Pumpkins, Vegetable Marrows, &c., of our gardens, most of them of very ancient cultivation, but unknown in a wild state.

A. Stamens 3. Ovary with usually 3 placentas. Ovules and seeds horizontal.
  I. Corolla-lobes free to the base or nearly so. Filaments usually free.
    a) Calyx-tube of the male flowers elongate. Anthers included in the Calyx-tube . . . . . 1. **Lagenaria.**
    b) Calyx-tube of the male flowers mostly short.
      1. Calyx-tube without scales inside.
        α) Filaments long distinct, and anthers broad, wholly exserted . . . . . 2. **Luffa.**
        β) Filaments short, inserted within the calyx-tube; anthers included on partially exserted.
          * Connective produced at the apex . . 3. **Cucumis.**
          ** Connective not produced at the apex 4. **Citrullus.**
      2. Calyx-tube with 2—3 incurved scales inside 5. **Momordica.**
  II. Corolla campanulate, lobed to above or about the middle . . . . . 6. **Cucurbita.**
B. Stamens 5 . . . . . 7. **Bryonia.**

530. (1.) **Lagenaria** Seringe.

Monoecious or dioecious. Flowers all solitary; male: Long-petioled. Calyx-tube bell- or funnel-shaped; lobes 5, spreading. Petals 5, free, obovate or obcordate, mucronate. Filaments 3, free, inserted within the calyx-tube; anthers included, cohering; one 1-celled, two 2-celled; cells flexuous, connective not produced. Rudiment of ovary 0. Female fl.: Shortly peduncled. Staminodes 0. Ovary oblong ovoid or cylindric; style short, stout; stigmas 3, 2-lobed; ovules many on 3 placentas. Fruit woody, indehiscent; flesh corky. Seeds many, compressed, margined, furrowed and ridged longitudinally; testa smooth. — A pubescent, musky-scented, annual, climbing herb. Leaves broad; petiole 2-glandular at the apex. Tendrils 2-fid. Flowers large, white.

The genus is dispersed over the tropical and subtropical regions of both the New and the Old World.

1298. **Lagenaria vulgaris** Seringe in Mém. Soc. phys. Genève III (1825), p. 25 tab. 2. — Boiss. Flor. Or. II, p. 763. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77 no. 443. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — DC. Prodrom. III, p. 299. — Hook. in Flor. Trop. Afr. II, p. 529. — Cogniaux in DC. Monogr. Phanerog. III, p. 417. — Wight Ic. Plant. Or. tab. 105. — Pubescent, scabrous, tomentose, villous or almost glabrous. Stem stout, climbing. Leaves 2—10 cm broad, orbicular-cordate, undivided angular or more or less 3 to 7-lobed, toothed. Flowers 5—10 cm diameter, female smaller. Fruit extremely variable in size and shape. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. N. v. mer. O. D. l. D. a. sept. Cultivated and often subspontaneous.

Local name: qara' tawîl; qara' dabbe; qara'-ed-derûf; qara'-drâf (Schweinfurth).

Cultivated through the Tropics.

531. (2.) **Luffa** Cav.

Monoecious or dioecious. Male flower: Racemose. Calyx-tube bellor top-shaped; lobes 5, spreading. Petals 5, free, spreading, obovate or obcordate. Filaments 3 or 5, free or connate, inserted on the mouth of the calyx; anthers exserted, free, one 1-celled, two 2-celled; cells flexuous, bordering the broad connective. Rudiment of ovary glandlike. Female flower: Solitary. Staminodes various. Ovary elongate, angled or grooved; style columnar; stigma 3-lobed; ovules many on 3 parietal placentas. Fruit oblong or cylindric, even or ribbid, dry and fibrous inside, 3-celled, opening

by a terminal lid which bears the persistent style. Seeds numerous, oblong, compressed. — Annual, prostrate or scandent herbs. Leaves 5—7-lobed, petiole eglandular. Tendrils simple or 2-multifid. Flowers large, yellow or white; male jointed on to the pedicels. Fruit often large, dry, with a thin epicarp.

A small genus in the Tropical and subtropical regions.

1299. **Luffa cylindrica** (L.) Roem. Syst. Plant. (1829), p. 312. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Luffa aegyptiaca Miller Gard. Dict., ed. VIII no. 8. — DC. Prodrom. III, p. 303. — Luffa pentandra Roxb. Flor. Ind. IV, p. 712. — Wight Icon. Plant. Or., tab. 499. — Naud. in Ann. Scienc. Natur., Ser. IV Vol. XII p. 119. — Scabrid. Leaves 8—14 cm in diameter, palmately 5—7-angled or lobed, scabrid on both surfaces, distantly irregularly toothed; stipular bract small, cordate, glandular. — Male flower: Raceme a span long, many-flowered; bracts small, glandular; pedicels very short. Calyx-lobes 1 cm long, triangular-ovate, green. Corolla $2^1/_2$—6 cm broad. Stamens 3 or 5. Fruit 10—22 cm long, cylindric or trigonous, with 10 dark lines, but no sharp ridges. Seeds black, rarely whitish, with a narrow wing; testa smooth. — Flow. March to April.

M. ma. N. d. N. f. N. v. Often cultivated, rarely naturalized.

Local name: lub.

Also known from Tropical Africa.

532. (3.) Cucumis L.

Monoecious, rarely dioecious. Male flower: Fascicled or solitary. Calyx-tube short; lobes subulate. Corolla campanulate, deeply 5-lobed or -parted, lobes acute. Filaments short, free, inserted within the calyx-tube; anthers oblong, one 1-celled, two 2-celled; cells flexuous or conduplicate, rarely straight or curved, connective produced and papillose at the apex. Rudiment of ovary glandular. Female flower: Solitary. Staminodes 0 or subulate or reduced to glands. Ovary ovoid or globose; style short, stigmas 3, sessile, 2-lobed, obtuse; ovules many, on 3 or 5 placentas. Fruit subglobose, cylindric, terete or 3-gonous, smooth warted or spiny, sometimes 3-valved. Seeds many, oblong, compressed. — Annual or perennial-rooted, prostrate or climbing, hispid or scabrid herbs. Leaves entire lobed palmate or pedate. Tendrils simple, sometimes reduced to spines. Flowers yellow, usually small.

An abundant tropical African genus, the species of which are very variable indeed and difficult of identification.

A. Fruit echinate spinous or tubercled.
I. Stem hispid, with long slender brittle hairs or bristles . . . . . 1. **C. sativus.**
II. Stem scabrid, with short white hairs and shout prickles . . . . . 2. **C. prophetarum.**
B. Fruit smooth, glabrous or pubescent . . . . . 3. **C. Melo.**

1300. (1.) **Cucumis sativus** L. Spec. Plant. I (1753), p. 1437. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76. — DC. Prodrom. III, p. 300. — Hooker in Flor. Trop. Afr. II, p. 542. — Cogniaux in DC. Monogr. Phanerog. III, p. 498. — Naud. in Ann. Scienc. Natur., Ser. 4 Vol. XI, p. 27. — Boiss. Fl. Or. II, p. 759. — Annual; usually monoecious. Stem angular, sparingly branched, and petioles and peduncles covered with spreading stiff hairs or bristles. Leaves hispid, membranous, bright green, shortly palmately 3—5-lobed, lobes triangular-ovate, acute or acuminate. Female flower: Peduncle stout. Ovary narrow oblong, muricate with tumid rigid pungent prickles. Fruit very variable in length and breadth, fusiform, obscurely 3-gonous, yellow-green, glabrous, covered with distant rounded tubercles. — Flow. February to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: khiyâr.

Common in the Tropics. The native country of the cucumber is unknown.

1301. (2.) **Cucumis prophetarum** L. Spec. Plant. I (1753), p. 1436. — Boiss. Flor. Or. II, p. 759. — DC. Prodrom. III, p. 301. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76 no. 441. — Cucumis arabicus Del. in Hort. Monspel., p. 12. — Naud. in Ann. Scienc. Natur., Ser. 4 Vol. XI, p. 14. — Cucumis amarus Stocks Plant. exsicc. — Annual. White, or ashy and scabrid with stiff hairs. Stem much branched from the base, geniculate at the nodes, angular, and petioles and peduncles clothed with short, white, stout, little bristles. Leaves small, 5 mm to $2^1/_4$ cm broad, scabrid on both surfaces, subtriangular reniform or palmately 3—5-lobed, coriaceous; lobes short or long, quite entire or toothed, obtuse or acute; base truncate or more or less deeply cordate; petioles short or long, tendrils short. Male flower: Calyx and corolla hispid. Connective produced into a linear, flat, simple or 2-fid appendage, glandular at the tip. Female flower: Peduncles stout, short, covered with short, stout, rigid, pungent prickles. Staminodes linear. Stigmas short, 2-lobed. Fruit broadly ovoid, 2—$2^1/_2$ cm long, green with pale vertical bands, covered with scattered, soft, slender spines. Seeds small, 4 mm long, elliptic-

oblong, compressed, smooth, brownish, without thickened margin or depressed disk. — Flow. March to April.

D. a. sept. D. a. mer. Not rare in deep sandy places.

Local name: henedlai.

Throughout the Tropics.

1302. (3.) **Cucumis Melo** L. Spec. Plant. I (1753), p. 1435. — Boiss. Flor. Or. II, p. 759. — DC. Prodrom. III, p. 317. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Cogniaux in DC. Monogr. Phanerog. III, p. 545. — Pale green. Stems short, slender, angular, scabrid with short, straight and curved prickles. Leaves 1—3 cm long, coriaceous, reniform-cordate or ovate, palmately 3—5-lobed, lobes rounded, obtuse, irregularly toothed and waved, scabrid on both surfaces with white papillae. Male flowers: Small. Anthers ciliate, connective produced into a serrate oblong appendage. Female flowers: Peduncle short. Ovary clothed with silky appressed hairs. Fruit globose, sweet, edible, 1,5 cm in diameter, softly hairy, greenish-yellow. Seeds 4 mm long, elliptic-oblong, smooth, pale brown, without thickened margins or depressed disk. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: qawûn; shemâm; mahanâwy; du meyry.

Also known from Tropical Africa.

var. **Chate** (L.) Naud. ex. Boiss. Flor. Or. II (1872), p. 759. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — Stems more fleshy and robust; fruits elongate-fusiform. — Flow. February to March.

M. ma. N. p. N. d. N. f. N. v. N. v. mer. D. a. sept. Frequently cultivated and often naturalized.

Local name: ʾaggûr; ʾadjûr; ʾabd-el-lâwry; qattâ faqqûs.

Also known from the Tropics.

533. (4.) **Citrullus** Schrad.

Flowers all solitary; monoecious. Male flower: Calyx-tube campanulate; lobes 5. Corolla campanulate, 5-lobed to below the middle, lobes obtuse. Filaments 3, very short, free, inserted within the tube; anthers slightly cohering, one 1-celled, two 2-celled; cells linear, flexous, bordering the broad connective which is not produced beyond the cells. Rudiment of ovary gland-like. Female flower: Staminodes ligulate or setaceous. Ovary ovoid or globose; style short, stigma

3-lobed; ovules numerous, on 3 placentas. Fruit globose, usually hard, smooth. Seeds many, oblong, compressed, smooth. — Annual, rarely perennial herbs, foetid or musky, rarely scandent. Leaves deeply lobed; lobes narrow. Tendrils usually 2—3 fid. Flowers shortly peduncled, yellow. Fruit usually large.

A small genus in the Tropics and Subtropics.

A. Leaves not scabrid. Fruit sweet or slightly bitter 1. **C. vulgaris.**
B. Leaves scabrid. Fruit intensely bitter . . . . . 2. **C. Colocynthis.**

1303. (1.) **Citrullus vulgaris** Schrad. in Eckl. and Zeyh. Enum. Plant. capens. (1834—1837), p. 279. — Naud. in Ann. Scienc. Natur. Ser. IV, Vol. XI, p. 100. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Boiss. Flor. Or. II, p. 759. — Citrullus amarus Schrad. in Linnaea XII, p. 412. — Cogniaux in DC. Monogr. Phan. III, p. 508. — Cucurbita Citrullus L. Spec. Plant. I, p. 1435. — Cucumis Citrullus Semije in DC. Prodrom. III, p. 301. — Annual. Stem glabrous or woolly. Leaves and flowers much as in *Citrullus Colocynthis*, but the former more membranous, greener, not scabrid, glabrous or slightly hairy. Fruit variable in size from that of an apple to a man's head, and in colouring green or striped or marbled, bitter or sweet. Seeds variable in form and colour. — Flow. Januar to March.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated everywhere and often subspontaneous.

Local name: battîkh.

Widely distributed in Tropical Africa.

var. **colocynthoides** Schweinfurth in Nature XXVIII (1883), p. 113. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — Stem trailing, scabrid and somewhat pubescent. Leaves triangular-ovate in outline, 5—9 cm long, 7-lobed, or 3-lobed with the middle lobe ovate, the lobes sinuate-lobate. scabrid on both surfaces. — Flow. January to April. — It is the desert form of Citrullus vulgaris.

N. v. Environs of Aswân. — O. Great Oasis.

Local name: arândj (Schweinfurth).

Also known from Nubia.

1304. (2.) **Citrullus Colocynthis** Schrader in Linnaea XII (1838), p. 414. — Boiss. Flor. Or. II, p. 759. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77 no. 442. — Cogniaux in DC. Monogr. Phan. III, p. 510. — Wight Icon. Plant. Or., tab. 498. — Cucumis Colocynthis L. Spec. Plant. I, p. 1435. — Naud. in Ann. Scienc. Natur. Sér. IV, Vol. XI, p. 99. — Root perennial. Stem angular, scabrid. Leaves triangular-

ovate in outline 5—9 cm long, 7-lobed, or 3-lobed with the middle lobe ovate, the lobes pinnatifid or sinuate-lobulate, scabrid on both surfaces. Male flower: 1 cm diameter. Petals broad. Female flower: Ovary villous. Fruit globose, variegated green and yellow, as large as an orange; pulp dry, intensely bitter. Seeds small, 4—6 mm, lenticular, smooth. — Flow. March to April.

M. ma. M. p. N. d. N. v. O. D. l. D. i. D. a. sept. D. a. mer. Often abundantly, in deep sandy places.

Local name: handal; urky (Schweinfurth).

A common Indian plant, also known from the other parts of the Sahara region, Spain, Arabia, Tropical Africa and Cape Verde Islands.

534. (5.) **Momordica** Linn.

Monoecious or dioecious. Male flower: Solitary or corymbose or racemose. Calyx-tube very short, campanulate, with 2—3 incurved membranous scales inside; lobes rounded ovate or lanceolate. Corolla rotate or campanulate, 5-lobed or -partite, lobes obovate, ribbed, 2 often larger than the others. Filaments 3, rarely 2 or 5, free, short, inserted at the mouth of the calyx-tube; anthers finally free, entire or 2—3-partite or lobed, one 1-celled, two 2-celled; cells flexuous, rarely straight or simply curved, connective not produced at the apex, which is occasionally villous or papillose. Rudimentary ovary 0 or gland-like. Female flower: Solitary. Staminodes 0, or 3 glands at the base of the style. Ovary oblong or fusiform; style slender, stigmas 3; ovules very many on 3 placentas. Fruit of various shapes, sometimes 3-valved. Seeds few or many, flat or tumid, smooth or sculptured. — Annual or perennial-rooted, prostrate or climbing herbs. Leaves entire lobed or pedate. Tendrils simple or 2-fid. Flowers large or small, yellow, rarely white.

The genus is dispersed over the tropical and subtropical regions of both the New and the Old World; most of the species, however, are African. The following one common in Asia and Africa.

1305. **Momordica balsanina** L. Spec. Plant. I (1753), p. 1453. — Boiss. Flor. Or. II, p. 757. — Wight Icon. Plant. Or., tab. 504. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 76 no. 440. — Seringe in DC. Prodrom. III, p. 311. — Naud. in Ann. Scienc. Natur., Ser. V Vol. V, p. 21. — Lam. Illustr., tab. 794 fig. 1. — Momordica garipensis E. Mey. ex Boiss. Flor. Or. II, p. 757. — Monoecious; glabrous or young parts slightly pubescent. Stem very slender. Leaves membranous, $2^1/_2$—$6^1/_2$ cm in diameter, orbicular, palmately 3—5-lobed to about the middle, lobes rhomboid, deeply acutely lobulate; basal sinus deep and broad. Tendrils simple. Male flower: Peduncle

longer than the leaf, bract towards its apex, 1-flowered, green, orbicular-cordate or reniform, almost entire. Calyx-lobes thin, ovate, acuminate. Corolla irregular, yellow or white, centre black, 1 to 2 cm in diameter. Anther-cells flexuous; connective broad. Female flower: Peduncle 1 cm long; bract 0 or basal. Calyx-lobes narrower. Ovary fusiform, beaked, warted. Fruit broadly ovoid, narrowed into the peduncle, beaked, smooth, red, fleshy, 2—6 cm long; seeds many, pale brown, 1 cm long, broadly oblong, flattened; edges broad, tubercular, grooved, teeth crustaceous. — Flow. March to April.

N. d. Cultivated in the most gardens and often naturalized.

Local name: beylâsân.

Also known from Tropical Africa.

535. (6.) **Cucurbita** Linn.

Monoecious. Flowers all solitary. Male: Calyx-tube campanulate, lobes simple or foliaceous. Corolla campanulate, 5-lobed to or below the middle; lobes recurved at the apex Filaments 3, free, inserted at the base of the calyx; anthers connate, one 1-celled, two 2-celled, cells elongate, conduplicate. Rudiment of ovary 0. Female flower: Staminodes 3. Ovary oblong; style short, stigmas 3, 2-lobed; ovules numerous, on 3 placentas. Fruit fleshy. Seeds many, ovate or oblong, flattened, margined or not. — Annual or perennial-rooted tropical herbs; branches usually prostrate and rooting. Leaves lobed, cordate at the base. Tendrils 2-multifid. Flowers large, yellow. Fruit large.

The gourds and pumpkins are commonly cultivated, and very variable and difficult to distinguish by dry specimens. — A large genus known from Tropical and temperate region of the New and Old World.

A. Leaves not deeply lobed; petioles scarcely prickly . 1. **C. maxima.**
B. Leaves deeply lobed; petioles prickly . . . . . 2. **C. Pepo.**

1306. (1.) **Cucurbita maxima** Duchesne in Lam. Encyclop. II (1786), p. 151. — DC. Prodrom. III, p. 316. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — Cogniaux in DC. Monogr. Phan. III, p. 544. Naud. in Ann. Scienc. Natur., Ser. IV Vol. VI, p. 17. — Annual. Stems subterete. Leaves large, reniform, 5-lobed, lobes rounded, sinus shallow or 0; hairs of petiole equal, rough, not pungent. Flowering peduncles terete. Calyx-tube obconic, not contracted under the campanulate corolla; teeth linear filiform or undeveloped. Fruiting peduncle stout, corky, striate, not grooved. Fruit with scarcely fibrous pulp. Seeds white. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Often cultivated and sometimes naturalized.

Local name: qara' stambuly; qara' malty; generally qara'.

Also known from other parts of the Saharia region, Middle Asia, Tropical Africa (cultivated under various formes); origin unknown.

1307. (2.) **Cucurbita Pepo** L. Spec. Plant. I (1753), p. 1435. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77. — DC. Prodrom. III, p. 317. — Cogniaux in DC. Monogr. Phan. III, p. 545. — Boiss. Flor. Or. II, p. 759. — Naud. in Ann. Scienc. Nat., Ser. IV Vol. VI p. 17. — Annual. Stem creeping, rarely erect, angular and grooved. Leaves 5-lobed, with a deep basal sinus, lobes acute, often lobulate; petioles and nerves beneath prickly. Peduncles obtusely 5-angled. Calyx of the male flower campanulate, constricted beneath the corolla, teeth subulate. Fruiting peduncle often woody, angled and deeply grooved. Fruit with fibrous flesh. Seeds white. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Abundantly cultivated and often naturalized.

Local name: qara' kûsa; qara' maghreby; generally: kûsa.

The Pumpkin is known from all hot countries.

536. (7.) **Bryonia** Linn.

Calyx in the males, and free part of it in the females, broadly campanulate, 5-toothed. Corolla campanulate, deeply 5-lobed. Stamens in the males 3; filaments free; anthers two with 2 cells, one with 1 cell, the cells flexuose. Ovary in the females fusiform, ovoid or globular, contracted at the top, with 3 placentas and few horizontal ovules; style slender, with 3 reniform or bifid stigmas. Fruit a globular or ovoid-conical berry. Seeds few, compressed, or with convex faces and a thickened margin enveloped in pulp. — Climbing herbs with simple or 2-branched tendrils. Leaves palmately lobed. Flowers greenish-yellow, small as well as the fruits, in axillary racemes sometimes adduced to clusters.

The genus, taken in the above extended sense given to it by most botanists, although not numerous in species, ranges over the warmer and temperate regions both of the New and the Old World.

1308. **Bryonia cretica** L. Spec. Plant. I (1753), p. 1439. — Boiss. Flor. Or. II, p. 760. — Sibth. and Smith. Flor. Graec., tab. 940. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 77 no. 444. — Sickenberg. Contrib. Flor. d'Eg., p. 243. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 648 no. 123. — Desf. Coroll., tab. 70. — A perennial

plant. Leaves cordate, 5-lobed vel or-partite, asperulous. Female flowers few, corymbosed or solitary, calyx twice as long as the corolla; style not exserted; stigmas asperulous; berries red. — Flow. February to April.

M. ma. Ras-el-Kenâ'is; Matruqa; Abukîr; Mariut; Alexandria-West and -East.

Also known from Greece.

Campanulatae.

Herbs, shrubs or rarely trees. Leaves mainly alternate: blades entire or toothed. Flowers perfect, monoecious or dioecious, few or many aggregated on a receptacle and surrounded with an involucre of few or many bracts, or the involucre rarely obsolete. Calyx 1 or 2 rows of bristles, scales, a mere border or a crown, or obsolete or wholly wanting. Corolla of several more or less united petals. Androecium of usually 5 stemens, the anthers merely converging, or united. Gynoecium mostly of 2 united carpels. Ovary inferior. Styles or stigmas mostly 2. Fruit an achene.

111. Campanulaceae.

Flowers hermaphrodite, or rarely by abortion unisexual, regular or irregular. Calyx-tube adnate to the ovary; limb usually 5-lobed or 5-partite, exceptionally 3—10-partite; lobes equal or slightly unequal, open valvate or imbricate in aestivation, usually persistent and enlarging after the corolla withers. Corolla gamopetalous, tubular campanulate rarely infundibuliform of rotate, straight or oblique, limb regular or oblique or bilabiate, lobes isomerous with the calyx, short or more or less deeply divided, valvate or induplicate-valvate, rarely 1, 2 or all the petals free. Stamens of the same number and alternate with the lobes of the corolla commonly inserted on the disk, sometimes on the tube of the corolla or adnate to it, filaments free from each other or cohering at the top or throughout their entire length; anthers linear oblong or rarely ovate-free or connate in a tube around the apex of the style, 2-celled, cells parallel, introrse, dehiscing longitudinally. Ovary inferior half inferior or rarely almost superior, 2—5- or rarely 6—10-celled, the septa sometimes imperfect or disappearing early; placentas axile or attached to the middle of the septa, stipitate or peltate; ovules numerous or rarely only two at the base or apex of each cell. Style simple, clavate at the apex, papillose, at first enclosed by the anthers afterwards protruding beyond them, stigmatic lobes of the same number as the cells of

the ovary. Fruit capsular or baccate dehiscing variously or indehiscent. Seeds usually small; testa thin or coriaceous, smooth or reticulated; embryo straight in the axis of the albumen. — Herbs or undershrubs of various habit and foliage, usually with a milky juice.

An Order consisting upwards of 50 genera and 1,500 species, dispersed over nearly all temperate and tropical regions.

A. Capsule dehiscing loculicidally at the top into as many valves as there are cells . . . . . 1. **Wahlenbergia.**
B. Capsule dehiscing laterally between the ribs into separate valves or pores.
  I. Corolla tubular to campanulate, rarely rotate, short-lobed . . . . . 2. **Campanula.**
  II. Corolla rotate, deeply 5-cleft . . . . . 3. **Specularia.**
C. Capsule having a circumscissile dehiscence; flowers in spikes . . . . . 4. **Sphenoclea.**

537. (1.) **Wahlenbergia** Schrad.

Calyx-tube adnate to the ovary; limb 5-parted or very rarely with only 3 or 4 lobes. Corolla campanulate funnel-shaped tubular or almost rotate, slightly 5-lobed, or parted to the middle or sometimes deeper, very rarely with only 3 or 4 lobes. Stamens free from the corolla; filaments usually dilated at the base; anthers free. Ovary inferior or half-superior, 2—5-celled; ovules numerous; stigma narrowly 2—5-fid. Capsule dehiscing loculicidally into as many valves as there are cells, when there are 5 valves alternating with the calyx-lobes. — Annual or perennial herbs of various habit, often woody at the base. Leaves alternate or rarely opposite. Flowers usually some shade of blue, variously arranged, nodding; capsule erect.

A genus of nearly 80 species, chiefly South African, a few occurring in Tropical America and the Mediterranean region and one widely spread in Western Europe.

A. Perennials with ascending slender leafy stems, terminating in long naked few-flowered peduncles 1. **W. Cervicina.**
B. Annuals, usually 30 cm or more high . . . . . 2. **W. etbaica.**

1309. (1.) **Wahlenbergia Cervicina** A. DC. in DC. Prodrom. VII (1837), p. 440. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 663. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Cervicina campanuloides Del. Illustr. Flor. d'Eg., p. 7 tab. 5 fig. 2. — Wahlenbergia campanuloides Vatke in Linnaea XXXVIII, p. 706. — A dwarf branching pilose annual, 5 or 8 cm high. Leaves alternate sessile linear-lanceolate, less than 1 cm long obscurely denticulate. Flowers very

small, borne on short peduncles opposite the leaves. Calyx-tube pilose ovoid; lobes 3 or 4 linear-lanceolate obscurely toothed. Corolla 3- or 4-lobed slightly exceeding the calyx-lobes. Stamens 3. Capsule 2-celled. — Flow. March to April.

N. d. Alexandria; Damanhur; Tanta; Cairo. — **N. v.** Gîza near Saqqâra.

It occurs also in Upper Guinea.

1310. (2.) **Wahlenbergia etbaica** (Schweinf.) Vatke in Linnaea XXXVIII (1874), p. 435. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 101 no. 664. — Laurentia etbaica Schweinfurth in Verhandlg. zool.-botan. Ges. Wien XVIII (1868), p. 683. — An annual with an almost unbranched stem, leafy and hispid in the lower half, leafless and glabrous above, about 20 cm high. Leaves alternate, sessile, ovate, lanceolate, narrowed at the base, about 5 cm long by 8 mm broad, the upper ones acute, hispid along the midrib on the under surface, margin irregularly undulate-crenate ciliate. Flowers small white, terminal and lateral distant. Calyx-tube glabrous the elongated slender lobes scarcely as long as the tube, lanceolate acute entire. — Flow. March to April.

D. a. sept. Gebel Sheykh Embarak near Feshn. (Deflers.).

Also known from Soturba.

538. (2.) **Campanula** Linn.

Calyx-tube adnate to the ovary, hemispherical, turbinate or ob-ovoid; limb deeply 5-lobed or partite, the sinuses furnished with flattened reflexed appendages or naked. Corolla campanulate, rarely funnel-shaped or nearly rotate, more or less deeply 5-lobed. Stamens free from the corolla; filaments usually dilated at the base; anthers free. Ovary inferior, 3- or 5-celled; ovules numerous; stigma 3- or 5-fid, lobes narrow. Capsule crowned by the persistent calyx-lobes, dehiscing laterally between the ribs in separate valves. — Perennial or rarely annual herbs of various habit, foliage and inflorescence. Flowers usually blue, rarely violet, pink or white.

A genus of more than 200 species, widely dispersed in the northern hemisphere, and especially abundant in the eastern part of the Mediterranean region.

A. Leaves sessile.
  I. Calyx spurred . . . . . 1. **C. sulphurea.**
  II. Calyx not spurred . . . . . 2. **C. Erinus.**
B. Leaves short-petioles . . . . . 3. **C. dimorphantha.**

1311. (1.) **Campanula sulphurea** Boiss. Diagnos. Plant. Or., Ser. I fasc. XI (1849), p. 64. — Flor. Or. III, p. 930. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 665. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 767. — Aschers. Flor. Rhinocol., p. 800 no. 176. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — An annual plant, 20 to 50 cm high, or sometimes somewhat more, appressed-strigulose; stems 1-∞, brancing from the neck and above. Leaves sessile, oblong-linear. Flowers terminal, short-pedicelled; calyx-lobes lanceolate, acute, strigose at the margin and nerves, in fruit growing but little, connivent, spurs ovate-obtuse, not longer than the tube; corolla 2 cm long, glabrous, yellow, a little more than twice as long as the calyx; capsule nodding. — Flow. February to March.

M. p. El-ʿArîsh. — **D. i.** Bîr-el-Mesaʾuydât; Gebel Ekhfên; Bîr-Abû-Elfein. — **D. a. sept.** Great Petrified Forest near Cairo.

Local name: foqeyha (Ascherson).

Also known from Arabia Petraea.

1312. (2.) **Campanula Erinus** L. Spec. Plant. I (1753), p. 169 — Boiss. Flor. Or. III, p. 932. — Aschers.-Schweinf. Ill. Flor. d'Eg. p. 102 no. 667. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 658 no. 216. — Rchbch. Icon. XIX, tab. 256, fig. I. — An annual plant, 10—25 cm high or sometimes somewhat more, hirsute. Stems dichotomous from the base. Leaves obtusely serrate, obovate to elliptical, short petioled to sessile floral ones 3—5-lobed, generally opposite. Flowers sessile, 3 mm long; calyx-lobes triangular-lanceolate, in fruit growing and spreading-stellate; corolla a little longer than the calyx-lobes, pale bluish-white; capsule nodding, top-shaped. — Flow. March to April.

M. ma. Marmarica: Matruqa; Behig; Mariut; Montaza; Alexandria-West and -East, probably recently introduced.

Also known from all the other parts of the Mediterranean region.

1313. (3.) **Campanula dimorphantha** Schweinfurth Beitr. Flor. Aethiop. (1865), p. 140. — Boiss. Flor. Or. III, p. 932. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 666. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — An erect pubescent annual, 12—20 cm high, branching rom the base. Leaves alternate, pubescent, crenulate-dentate, the ower ones ovate or obovate spathulate, narrowed into a distinct petiole, about 2,5 cm long, the upper ones narrower, ovate-lanceolate, linear-lanceolate, short-petioled or nearly sessile. Flowers dimorphic; fertile ones about 2,5 mm long, arranged in terminal and axillary cymes apetalous and almost or quite closed; calyx pilose, lobes entire, lanceolate or linear subulate, in appendiculate; sterile ones olitary and scattered along the simple stems, with a calyx and

corolla nearly 12 mm long. Corolla pubescent on the outside, blue, equalling the calyx. Anthers linear; filaments not dilated at the base. Capsule of the fertile flowers erect, 3-or rarely 4-celled, many-seeded. — Flow. March to April.

N. v. Cairo.

Also known from Nubia.

539. (3.) **Specularia** Linn.

Calyx 5-parted into linear or awl-shaped lobes. Corolla rotate, 5-lobed. Style hairy. Capsule linear or oblong, prismatic; valves narrow, opening laterally beneath the apex. — Annuals, with stems simple or branching from neck, and violet flowers.

A small genus chiefly distributed in the Mediterranean region and Europe.

1314. **Specularia Speculum** A. DC. Monogr. Camp. (1830), p. 346. — Boiss. Flor. Or. III, p. 959. — Sibth. and Smith. Flor. graec., tab. 216. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 668. — Campanula Speculum L. Spec. Plant. I, p. 538. — Prismatocarpus Speculum L'Herit. Sert. Angol., p. 2. — Campanula cordata Vis. Flor. Dalmat., p. 5. — An annual Plant, 20—50 cm high or sometimes somewhat more. Leaves sessile, oblong, the lowermost tapering at the base, the uppermost half-clasping or heart-shaped at the base. Flowers solitary, or 3—5 together in terminal corymbs; calyx-lobes linear subulate, during flowering nearly or quite as long as the tube and as corolla-lobes; corolla 1—2 cm long; capsule constricted at the tip. — Flow. March to April.

N. d. Environs of Cairo.

Also known from Europe, Arabia Petraea, Palestine and Syria.

540. (4.) **Sphenoclea** Gaertn.

Calyx-tube adnate to the ovary, hemispherial; limb 5-partite, lobes rounded, imbricate. Corolla campanulate, 3-lobed, valvate. Stamens free from the corolla or only slightly attached to its base; filaments dilated at the base; anthers short, free. Ovary half-inferior, 2-celled; placentas stipitate; ovules numerous. Style short; stigma at length shortly bifid. Capsule depressed, globose, dehiscing transversely, operculum carrying away the calyx-lobes. Seeds numerous, very small.

The genus is limited to the species described below.

1315. **Sphenoclea zeylanica** Gaertn. De Fructib. I (1788), p. 113 tab. 24 fig. 5. — Wight Icon. Plant. Orient., tab. 138. —

Aschers.-Schweinf. Ill. Flor. d'Eg., p. 102 no. 669. — Sphenoclea Pongatium DC. Prodrom. VII, p. 548. — Boiss. Flor. Or. III, p. 963. — An erect glabrous annual, 30 cm to 1,20 m high, with a stout fleshy slightly branched stem. Leaves alternate, linear-lanceolate, acute, entire, from 2—12 cm long, according to the vigour of the plant. Flowers greenish yellow, about 5 mm in diameter, in dense bracteate spikes from 2—6 cm long. — Flow. March to April.

N. d. Rosetta; Damietta; in rice-fields.

Local name: hash îshel-fârras (Schweinfurth).

Also common in marshy places in Tropical Africa, Asia and America.

112. Compositae.

Known by having the flowers in a head, surrounded by an involucre (forming an compound flower of the older botanists), and syngenesious anthers. — Flowers either perfect, polygamous, or monoecious, or rarely dioecious, or some neutral. Corolla gamopetalous (monopetalous). Stamens 5, or sometimes 4, inserted on the tube of the corolla alternate with its lobes: filaments generally distinct: anthers syngenesious, i. e. united into a tube. Ovary 1-celled, with a solitary erect anatropous ovule: style one, 2-cleft or 2-lobed at the apex, the lobes or branches of the styles bearing stigmas in the form of marginal lines on their inner face. Fruit an achene. Seed destitute of albumen, filled by the straight embryo. — Calyx with tube investing and incorporated with the ovary, its limb either wanting, or in the form of a border or crown, or of teeth scales, awns, bristles, etc., surmounting, the ovary: it is called a pappus, whatever be its form or texture. Corolla epigynous, either strap-saped (ligulate) or tubular; in the former case the 5 or 4 petals of which it is composed are sometimes indicated by thee teeth or notches at the apex of the ligule or expanded portion: in the latter case 5-lobed or occasionally 3-lobed, the lobes valvate in the bud, the veins of the tube forking at the sinuses and bordering the lobes. Anthers 2-celled, introrse, opening on the inner face; the pollen brushed out of the tube by the lengthening of the style, some portion of which, or of its branches, in staminiferous flowers usually is beset externally or tipped with a rough bristly or papillose surface. Heads homogamous, i. e. with all their flowers alike or heterogamous, i. e. of more than one sort of flowers. Homogamous heads are sometimes completely liguliflorous, i. e. all the flowers with strap-shaped or ligulate corolla, and in this case all bisexual, sometimes discoid, i. e. with no ligulate flowers. Heterogamous heads are commonly radiate, i. e. the outermost or marginal

flowers have enlarged and mostly strap-shaped corollas and are always female or else neutral: these are called flowers of the ray, or ray-flowers, or shortly rays: those within are termed flowers of the disk or disk-flowers. Some heterogamous heads are discoid, i. e. the marginal-flowers although unlike the central-ones or all tubular, or at least not developed into rays. The bracts or leaves of the involucre which surround the head are commonly termed scales, whatever their texture. The commonly dilated extremity of the peduncle on which the flowers are inserted is the receptacle. When the receptacle bears only flowers within the involucre, it is said to be naked: when there are bracts usually in the form of chaffy scales (therefor termed paleae, palets or chaff) borne on the receptacle, mostly one outside of each flower, the receptacle is said to be paleaceous or chaffy.

An immense family by far the largest of flowering plants, comprising about 950 genera and 20000 species. It is found in every part of the world, from the equater to the limits of phaenogamic vegetation in the arctic and antarctic region, and is equally plentiful in lowland districts and in mountainous or alpine situations. Although so numerous in species, the order is far from being proportionately important an economic point of view. Edible species are singularly few, the chief being the *Jerusalem* and *common artishoke,* lettuce, and cichory. Oils are yielded by the *sunflower* and by *Madia sativa.* The chief medicinal plants are *arnica*, *wormwood*, and *camomile.* Many ornamental species are cultivated in gardens, as the various kinds of *chrysanthemums*, *dahlias*, *cinerarias*, *asters*, *sunflowers*, *Zinnias*, *marigolds*, etc.; but on the whole it must be confessed that the majority of the plants composing the order present a weedy and unattractive appearance. Most of the Egyptian genera are widely distributed. Many weeds of cultivation belonging to the family have become naturalized in Egypt.

A. *Tubuliflorae.* — The corollas tubular and 5- (or rarely 4-) toothed or claft in the perfect flowers; those with ligulate corollas (rays) at the margins either pistillate or neutral.

I. Style-branches slender-subulate, minutely hispid; heads homogamous and the flowers all perfect, with tubular corolla, never yellow. Anthers sagittate at the base . **1. Vernonieae.**

II. Style-branches club-shaped, obtuse, neither hairy nor appendaged: flowers all perfect, never yellow . . . . . **2. Eupatorieae.**

III. Style-branches of perfect flowers flat and tipped with a distinct flat appendage: anthers without tails leaves all alternate **3. Asteroideae.**

IV. Style-branches of the perfect flowers neither truncate nor tipped with any appendage; anthers with tails; heads heterogamous; receptacle not long bristly; corollas not deeply cleft . . . . . 4. **Inuloideae.**

V. Style-branches of perfect flowers truncate-capitate tipped with an appendage; anthers without tails; leaves or some of them often opposite.

a) Receptacle chaffy, at least next margin; involucre not scarious; pappus not capillary . . . . . 5. **Helianthoideae.**

b) Receptacle not chaffy or nearly so; involucre not of imbricated scarious scales; pappus not capillary . . . . . 6. **Helenioideae.**

c) Receptacle not chaffy or rarely so; involucre of imbricated partly scarious scales; pappus a short crown or none 7. **Anthemideae.**

d) Receptacle not chaffy.

1. Pappus capillary and copious . . . 8. **Senecioneae.**

2. Pappus none . . . . . 9. **Calenduleae.**

VI. Style-branches without tips or appendage, more or less concreted to or near the apex; corollas all tubular and very deeply (sometimes irregularly) 5-cleft into long linear lobes; receptacle densely bristly; anthers sagittate or with tails . . . . . 10. **Cynareae.**

B. *Liguliflorae.* — The corollas all ligulate (and 5-toothed at the apex), and the flowers perfect. Juice milky . . . . . 11. **Cichorieae.**

I. Vernonieae.

Heads homogamous and the flowers all perfect, with tubular corolla, never yellow. Anthers sagittate at the base. Branches of the styles slender-subulate, minutely hispid . . . . . 1. **Ethulia.**

II. Eupatorieae.

a) Pappus of 2 to 12 stout bristles or awns, alternating with as many scales . . . . . 2. **Ageratum.**

b) Pappus of numerous capillary bristles . . 3. **Eupatorium.**

III. Asteroideae.

Heads either heterogamous or homogamous, the disk-flowers with regular tubular corolla, the

ray-flowers when present ligulate and pistillate only, rarely neutral. Receptacle naked (not chaffy). Anthers nearly entire at the base (without tails). Branches of the style in perfect flowers flattened, tipped with an appendage. Leaves mostly alternate.

a) *Asterinae.* — Heads homogamous and the flowers perfect or heterogamous and mostly radiate, yet several are discoid, or with merely filiform corollas to the pistillate flowers, but none dioecious.

1. Rays numerous, almost always in a single series. Involucre imbricated. Style-appendages subulate or lanceolate, not long-bearded. Achenes mostly flattened. Pappus simple, copious . . . . . 4. **Aster.**

2. Rays numerous, long and slender, or sometimes short, in one or more series. Involucre of numerous narrow and mostly equal scales, little imbricated, not herbaceous. Style-appendages short and broad, mostly obtuse. Achenes small, flattened, commonly with a nerve or rib at each margin, rarely with one or more on the faces. Pappus simple or double; the outer when present of short bristles or chaffy scales; the other of capillary scabrous bristles as in Aster, but commonly scantier in a single series, and more fragile or deciduous . . . . . 5. **Erigeron.**

b) *Conyzinae.* — Heads heterogamous but never radiate; the pistillate flowers in more than one series; their corollas a mere filiform tube, much shorter than the style; the perfect flowers with tubular 4—5 toothed corollas, much fewer in the centre of the disk . . . 6. **Conyza.**

c) *Prángeinae.* — Female flowers in 2—∞-rows; flowers actinomorphous; corollas subulate or filiform; pappus 0 or nearly so, shorter than the achenes.

1. Receptacle without bracts . . . . . 7. **Grangea.**
2. Receptacle with bracts . . . . . 8. **Ceruana.**

IV. Inuleae.

Capitula heterogamous, radiate or usually discoid with outer florets female and inner bisexual or sterile, or homogamous with all the florets bisexual and tubular, or rarely dioecious. Involucral scales usually in many rows, rarely sub-2-seriate. Corolla of female flowers ligulate or filiform, of bisexual flowers regular tubular, shortly lobed. Anther-base sagittate, usually tailed; connective produced at the apex. Style-branches of the bisexual flowers narrow, more or less flattened above, rounded or truncate, not appendaged at the apex. Achenes various. Pappus usually setaceous or wanting. — Herbs, shrubs or small trees. Leaves alternate, undivided or rarely lobed.

a) *Plucheineae.* — Bisexual. Involucral scales pluri- or pauci-seriate or rarely few scarious or herbaceous. Female florets, when present, filiform or narrowly tubular, not ligulate. Style branches of the hermaphrodite florets filiform not truncate; receptacle naked.

1. Capitula separate, not crowded in compound heads . . . . . 9. **Laggera.**
2. Capitula crowded in globose or oblong or ovoid compound heads . . . . . 10. **Sphaeranthus.**

b) *Filagininae.* — Involucral scales pluri- or pauci-seriate or rarely few, scarious or herbaceous. Female florets, when present filiform or narrowly tubular, not ligulate. Style-branches of the hermaphrodite florets filiform not truncate. Receptacle, at least about the circumference, paleaceous.

1. Female or all flowers without a pappus.
   α) Bisexual flowers without a pappus . 11. **Evax.**
   β) Bisexual flowers with a pappus . . . 12. **Ifloga.**
2. Pappus of the bisexual and the inner female flowers of 1- or 2-seriate bristles 13. **Filago.**
3. Pappus of the female flowers double; the inner one long squamiform, the outer one setacous . . . . . 14. **Gymnarrhena.**

c) *Gnaphalinae.* — Involucral-scales pluri- or pauci-seriate or rarely few, scarious or

herbaceous. Female florets, when present, filiform or narrowly tubular, not ligulate. Style-branches of the hermaphrodite florets truncate.

1. Female florets more numerous than the bisexual florets.
   α) Pappus plumose . . . . . 15. **Lasiopogon.**
   β) Pappus not plumose.
      † Anther-base obtuse or minutely tailed . . . . . 16. **Phagnalon.**
      †† Anther-base tailed . . . . . 17. **Gnaphalium.**
2. Female florets less numerous than the bisexual florets . . . . . 18. **Helichrysum.**

) *Athrixinae.* — Involucral scales pluri- or pauci-seriate or rarely few, scarious or herbaceous. Female florets, when present, ligulate or rarely tubular. Receptacle naked. Style-branches of the hermaphrodite florets truncate . . . . . 19. **Leyssera.**

e) *Inulineae.* — Involucral scales pluri- or pauci-seriate or rarely few, scarious or herbaceous. Female florets, when present, ligulate or rarely tubular. Style-branches of the bisexual flowers wider and rounded at the tip.

1. Pappus simple, plumose or setaceous.
   α) Pappus of equal bristles.
      † Capitula many-flowered . . . . . 20. **Inula.**
      †† Capitula few-flowered . . . . . 21. **Varthemia.**
   β) Pappus of unequal bristles . . . . . 22. **Iphiona.**
2. Pappus double, the inner one plumose or setaceous, the outer one squamiform . . 23. **Pulicaria.**

f) *Buphthalminae.* — Involucral scales pluri- or pauci-seriate or rarely few, scarious or herbaceous. Female florets, when present, ligulate or rarely tubular. Receptacle rigidly paleaceous.

1. Pappus of the female or of all flowers 0 or rarely of 3—4 short teeth . . . . 24. **Anvillea.**
2. Pappus present in all flowers.
   α) Corolla-tube thickened . . . . . 25. **Pallenis.**
   β) Corolla-tube not thickened . . . . . 26. **Odontospermum.**

V. Heliantheae.

Capitula heterogamous, radiate or rarely discoid, ray florets female fertile or neuter, disk-florets bisexual fertile or sterile; or capitula homogamous discoid unisexual or with all the florets bisexual. Involucral bracts various. Receptacle paleaceous or rarely on the disk, under the sterile florets, naked. Corolla of the bisexual florets tubular, regular 4—5 cleft. Anthers appendaged at the apex, at the base entire obtusely or scarcely tailed. Style-branches of the bisexual florets truncate or appendaged. Achenes various, usually compressed or angular; pappus aristate or shortly paleaceous or wanting. — Leaves at least the lower ones, usually opposite. Flowers usually yellow.

a) *Ambrosinae.* — Heads small and discoid; only the female flower fertile; these few and with no corolla, or a rudimentary one in the form of a short tube surrounding the base of the style. Bisexual-sterile or male flowers with campanulate limb to the corolla; anthers slightly cohering or nearly distinct, their inflexed tips often mucronulate or cuspidate; the abortive style entire, with truncate apex tipped with a minute radiate tuft or brush. Pappus none. Achenes usually obovate and thick.

1. Involucre of the male capitula gamophyllous; female capitula 1-flowered . . 27. **Ambrosia.**
2. Incolucre of the male capitula with three bracts. Female capitula 2-flowered . . 28. **Xanthium.**

b) *Zinnieae.* — Heads always heterogamous with ligulate somewhat rigid corollas; tube very short and small, persistent on the ripe fruit. Disk-florets bisexual, mostly fertil. Leaves opposite, rarely whorled . . . . . 29. **Zinnia.**

c) *Verbesininae.* — Heads radiate the rays either neutral or female, or else rayless; the disk-flowers perfect and fertile, each subtended by a chaff of the receptacle. Achenes thick and 3—4-angular; or those of the disk laterally compressed (i. e. contrary

to the subtending chaff), never obcompressed (i. e. flattened parallel with the chaff). Pappus none, or a cup or crown, or of 2 to 4 rigid awns or chaffy scales from the angles, with or without some intermediate small scales.

1. Scales very narrowed . . . . . 30. **Eclipta.**
2. Scales broad.
   α) Rays female and fertile . . . . . 31. **Verbesina.**
   β) Rays neutral, or rarely none . . . . 32. **Helianthus.**

d) *Coreopsidinae.* — Heads as in the preceding subtribe, except that the chaff of the receptacle is flat or nearely concave and mostly deciduous with the fruit. Achenes all obcompressed, i. e. flattened parallel with the subtending scales of the involucre and chaff of the receptacle; pappus of 2 to 4 awns or teeth from the angles, or none. Involucre in the most genera double, the outer loose and more or less foliaceous.

1. Aristae with ascending setulae . . . . 33. **Coreopsis.**
2. Aristae with descending setulae . . . . 34. **Bidens.**

VI. Helenioideae.

Heads heterogamous with ligulate ray-corollas, or discoid and homogamous by the abscence of rays; the tubular disk-flowers perfect and fertile or rarely sterile. Receptacle never chaffy. Anthers without tails. Branches of the style in perfect flowers either truncate or tipped with an appendage. Pappus of several chaffy scales or sometimes of awns or rigid bristles, not rarely wanting. Leaves opposite, or all but the lowest alternate. Involucre of herbaceous or membranous scales, in one or two or rarely 3 or 4 series. Corolla most commonly yellow, both in disk and ray.

a) *Heleninae.* — Involucre of nearly equal or narrow scales in one or few series. Rays if any deciduous. No oil-glands . . . . . 35. **Flaveria.**

b) *Tagetininae.* — Involucre of few or several equal scales in a single series, with or without some bractlets at the base, spotted,

as also the glabrous foliage, with large scattered volatile-oil-glands. Hence the herbage is strong-scented. Rays deciduous 36. **Tagetes.**

VII. Anthemideae.

Heads heterogamous either with ligulate ray-corollas or ray-less, the female flowers being small and tubular or none, or homogamous, all the flowers perfect with regular tubular corollas. Receptacle naked, or in some with narrow chaff subtending the flowers. Anthers without tails. Branches of the style in the perfect flowers with truncate or truncate-capitate tips, or in hermaphrodite-sterile flowers undivided. Achenes small, destitute of pappus, or with a short scarious crown or ring. — Leaves alternate, commonly dissected. Involucre of dry or partly scarious scales, appressed and imbricated in two or more (rarely almost in a single) series. Herbage mostly strong-scented.

a) *Anthemidinae.* — Receptacle chaffy.

1. Appendix of the corolla-tube not connate with the ovary or sometimes 0.

α) Fruit not or obsolete compressed.

* Shrubs . . . . . 37. **Santolina.**

** Herbs . . . . . 38. **Anthemis.**

β) Fruit compressed.

* Fruits winged . . . . . 39. **Anacyclus.**

** Fruits not winged . . . . . 40. **Achillea.**

2. Appendix of the corolla-tube connate with the ovary . . . . . 41. **Diotis.**

b) *Chrysantheminae.* — Receptacle not chaffy.

1. All the flowers furnished with corolla.

α) Rays present.

** Receptacle flat or convex. Achenes several-ribbed or angled . . . . . 42. **Chrysanthemum.**

** Receptacle high-conical. Achenes angled, truncate at the top . . . 43. **Matricaria.**

β) Rays wanting. Corollas in the marginal female flowers (when there are any) slender and 2—3-toothed. Heads panicled or racemose, small, often nodding. Achenes mostly obovoid and

rounded at the top, with a small terminal areola and no pappus . . . . 44. Artemisia.

2. Female flowers apetalous merely naked pistils; achenes abcompressed, not pointed with a persistent style, those of the female flowers stalked . . . . . 45. Cotula.

VII. Senecioneae.

Heads heterogamous with ligulate, rarely filiform, ray-corollas, ore sometimes homogamous and discoid; the flowers perfect or rarely staminate, and with regular tubular corollas. Receptacle not chaffy. Anthers often sagittate at the base, but without tails. Branches of the style in perfect flowers mostly with truncate, or somewhat capitate, or obtuse tips, rarely with any distinct appendage. Pappus of numerous usually very fine and soft capillary bristles. Leaves mostly alternate. Involucre almost always of equal herbaceous scales, in one or two series, or with some short ones or bracts added. Flowers usually yellow . . . . . 46. Senecio.

IX. Calenduleae.

Heads heterogamous radiate; flowers of the ray female, fertile, in 1—2 rows; flowers of the disk bisexual. Involucral bracts narrow, in 1—2 rows, herbaceous or membranous, usually scarious on the margins. Receptacle naked. Corollas of the ray-flowers ligulate, entire or 3-dentate at the tip; corollas of the disk-flowers regular, tubular, shortly 5-cleft. Anthers sagittate with mucronate auricles or subentire and obtuse. Style of the bisexual flowers undivided and rounded at the apex or with 2 short flattened truncate branches; style of the female florets bidentate or undivided. Achenes of the ray-flowers large, winged or subterete; those of the disk effete. Pappus 0. — Herbs or shrubs with alternate or occasionally opposite leaves and yellow or purple flowers . . . . . 47. Calendula.

X. Arctotideae.

Heads heterogamous radiate or rarely homogamous by deficiency of the ray-flowers; ray-flowers

female or neuter; disk-flowers bisexual, fertile or the inner most ones sterile. Involucral bracts in many rows, imbricated, broadly scarious or very acute or spinous at the apex. Corollas of the ray ligulate; corollas of the disk tubular, regular. Anther-base entire or sagittate; auricles obtuse or acute or mucronate, not tailed. Style of the disk-flowers obtuse, short. Achenes usually thick; pappus paleaceous or coroniform or wanting. — Herbaceous or some what shrubby, with alternate or radical leaves, yellow or purple disk-flowers, and yellow, purple or white rays . . 48. Gundelia.

XI. Cynareae.

Heads homogamous or rarely heterogamous with larger neuter ray-flowers in one row. Involucral bracts in many rows, imbricated, usually terminating in a spine or scarious appendix. Receptacle setose. Corollas all 5-cleft or-partite. Anther-base sagittate; auricles connate, mucronate or with fimbriate tails. Styles of the hermaphrodite flowers with short, narrow, rather obtuse branches, usually hard setose or narrowly paleaceous in several rows or 0. — Herbs often spinous with alternate or basilar leaves and red, yellow or white flowers, occasionally dioecious.

a) *Echinopsidinae.* — Capitula one-flowered collected into heads . . . . . 49. Echinops.

b) *Carlininae.* — Capitula many-flowered, rarely one-flowered and separated; fruit emarginate.

1. Inner-row of the involucral bracts membranous, radiating . . . . . 50. Carlina.

2. Inner-row of the involucral bracts erect, not radiating . . . . . 51. Atractylis.

c) *Carduinae.* — Capitula many-flowered, rarely one-flowered and separated, fruit glabrous not margined.

α) Filaments free, papillose, feathery.

* Receptacle not fleshy, or sometimes somewhat fleshy.

† Setae of the pappus not barbellate . . . . . 52. Carduus.

†† Setae of the pappus barbellate 53. Cirsium.

** Receptacle fleshy . . . . . 54. Cynara.
β) Filaments connate.
* Setae of the pappus not feathery . 55. Silybum.
** Setae of the pappus feathery . . . 56. Onopordon.
d) *Centaureinae.* — Achenes attached to the receptacle obliquely by one side of the base.
1. Fruit with a free folded margin . . . . 57. Zoegea.
2. Fruit with a simple margin.
α) Capitula without an involucre of leaflets.
* Involucral bracts without an appendix . . . . . 58. Crupina.
** Involucral bracts with an appendix 59. Centaurea.
β) Capitula with an involucre of small spiny leaflets.
* Pappus simple.
† Pappus 0 or squamiform . . . 60. Carthamus.
†† Pappus feathery . . . . . 61. Carduncellus.
** Pappus double . . . . . 62. Cnicus.

XII. Cichorieae.

Capitula homogamous; flowers all bisexual, ligulate, fertile or occasionally a few barren. Corolla-tube slender; ligule 5-toothed. Anthers appendaged at the apex, sagittate at the base, auricles acute or setaceous-acuminate, not tailed. Style branches slender, rather obtuse or acute. — Herbs with usually milky sap, alternate or basilar leaves, and yellow or occasionally purple or blue flowers.
a) *Scolyminieae.* — Thustly-like herbs; fruits compressed from the back . . . . . 63. Scolymus.
b) *Cichorinae.* — Pappus 0, cupuliform or squamiform, never feathery.
1. Flowers blue . . . . . 64. Cichorium.
2. Flowers yellow.
α) Involucral bracts after flowering not elongated and not indurated . . . . 65. Koelpinia.
β) Involucral bracts after flowering elongated and indurated.
* Fruits of the disk-flowers narrowly angulate . . . . . 66. Hyoseris.
** Fruit of the disk-flowers not angulate.
† Fruits shorter than the involucral bracts . . . . . 67. Rhagadiolus.

†† Fruits as long as the involucral bracts . . . . . 68. **Hedypnois.**

c) *Leontodonteae.* — Pappus of feathery bristles.

1. Lateral feathers of the pappus-bristles not confusedly weaved.

α) Leaves all basilar.

* Involucral leaves in one row. . . 69. **Urospermum.**

** Involucral leaves in many rows . 70. **Leontodon.**

β) Stems leafy . . . . . 71. **Picris.**

2. Lateral feathers of the pappus-setae confusedly weaved.

α) Involucral-bracts in one row . . . . 72. **Tragopogon.**

β) Involucral-bracts in many rows . . . 73. **Scorzonera.**

d) *Crepidinae.* — Pappus of setaceous or capillary bristles.

1. The inner-ones of the fruits beaked . . 74. **Heteroderis.**

2. All the fruits not beaked.

α) Fruits unequal . . . . . 75. **Launaea.**

β) Fruits equal.

* Fruit compressed.

† Fruit not narrowed to the apex 76. **Sonchus.**

†† Fruit narrowed to the apex . 77. **Lactuca.**

** Fruit not compressed, cylindric or prismatic.

† Pappus-setae deciduous. . . . 78. **Reichardia.**

†† Pappus-setae not deciduous . . 79. **Crepis.**

541. (1.) **Ethulia** Linn.

Capitula homogamous many-flowered. Involucre hemispherical or campanulate; bracts numerous imbricate. Receptacle convex naked. Corolla narrowed below, limb campanulate, 5-fid. Anthers linear, base obtuse, apical appendix ovate or lanceolate. Style-branches subulate hairy. Achene 5—4-costate, ribs prominent, truncate above, epappose. — Branching herbs. Leaves alternate simple. Capitula small in corymbose cymes, purplish.

Includes two species of the Old World Tropics.

1316. **Ethulia conyzoides** L. Spec. Plant. I (1753), p. 1171. — Boiss. Flor. Or. III, p. 153. — DC. Prodrom. V, p. 12. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 508. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Icon. Linn. fil. Dec., tab. I. — Ethulia gracilis Del. in Caill. Voy., tab. 64. — Ethulia conyzoides var. gracilis Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 508

(only a form with more paniculate cymes and subentire leaves). — Ethulia angustifolia Boj. in DC. Prodrom. V, p. 12. — Ethulia Kraussii Sch. Bip. in Walp. Rep. II, p. 945. — Kahiria conyzoides Forsk. Flor. aeg.-arab., p. 153. — Erect, more or less branched, 60—90 cm or higher. Stem thinly appressed hirsute or glabrescent, extremities sulcate. Leaves linear-lanceolate to narrowly elliptical or linear narrowed to each end, subdistantly sometimes obscurely serrate or entire, puberulous or thinly appressed hirsute-tomentose especially beneath, or nearly glabrous, more or less glandular-dotted, beneath, 2—10 cm long, with petiole 5 mm to $1^1/_2$ cm broad. Capitula 3—5 mm broad in subdense or diffuse corymbose cymes or cymes of fewer heads at the extremities of the upper branches and loosely panicled; pedicels 1—12 mm long. — Flow. October to March.

N. d. Alexandria; Rosetta; ʿAïn-el-Gatt. — **N. v.** Erment; Edfu.

Local name: hashîsh-el-farras (Schweinfurth).

Widely spread in Tropical as well as in Extratropical Africa and India.

542. (2.) **Ageratum** Linn.

Capitula homogamous. Involucre campanulate; scales 2—3-seriate, linear, acute, subequal; receptacle convex (or plane), naked (or paleaceous). Corolla tubular, slightly dilated above and narrowed at the 5-toothed mouth. Anther-base obtuse, tip ovate. Achenes 5—4-angular; pappus of 5—4 scaberulous setae, dilated and lanceolate at base (or setae connate below or 10—20 narrower). — Herbs. Leaves opposite or upper alternate. Capitula small or medium in paniculate corymbs. Flowers blue, purplish or white.

Confined to America with the exception of the following species, a common weed throughout the warmer regions of the globe.

1317. **Ageratum conyzoides** L. Spec. Plant. I (1753), p. 1175. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 509. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — DC. Prodrom. V, p. 108. — Schenk Handb., tab. 238. — Hook. Exot. Flor., tab. 15. — Erect branching annual, varying to 90 cm; branches subterete, finely striate, hirsute above. Leaves ovate, obtuse or subacute, base abruptly or obtusely narrowed, crenate or crenate-serrate, 2—6 cm long, 1—5 cm broad; petiole varying to 2 or 5 cm, often much shorter. Capitula 5 mm diam., in dense terminal panicled corymbs. Involucre nearly glabrous. Achenes black, glabrous or obsoletely setulose. — Flow. March to April.

N. d. N. v. Naturalized everywhere.

Widely spread in Tropical Africa.

var. **mexicanum** (Sims.) Sweet Brit. Flow. Gard. I (1823), p. 89. — Ageratum mexicanum Sims. Bot. Mag., tab. 2524. — Scabrous-puberulent, erect: leaves short-petioled, ovate to oblong-lanceolate, irregularly few-several-toothed: floriferous branches naked above: corolla-tube glanduliferous: pappus prominently cupulate, more or less dentate. — Flow. March to April.

N. v. Naturalized everywhere.

Also known from Mexico.

543. (3.) **Eupatorium** Linn.

Involucre hemispherical, campanulate or cylindrical, the bracts imbricate, in 2 or more series. Receptacle flat or slightly convex, without scales. Flowers numerous or few, all tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base. Style branches elongated, obtuse. Achenes 5-angled, without intermediate striae. Pappus of a single series of capillary bristles. — Perennial herbs or shrubs or very rarely annuals. Leaves usually opposite. Flower-heads mostly corymbose. Green parts of the plant often sprinkled with resinous dots.

A vast genus, the great majority of species being American, a few ranging over eastern Asia, and one extending to Europe and Australia.

1318. **Eupatorium cannabinum** L. Spec. Plant. I (1753), p. 1173. — Flor. Dan., tab. 745. — DC. Prodrom. V, p. 180. — Eupatorium dicline Edgew. in Trans. Linn. Soc. XX, p. 63. — A perennial with erect stems of 90 cm to 1,50 m in height, slightly pubescent. Leaves divided to the base into 3 broadly lanceolate coarsely-toothed segments, often 8 or 10 cm long, those of the upper leaves smaller and sometimes very narrow, the upper-most leaves rarely undivided. Flower-heads numerous in compact terminal heads. Involucres cylindrical, of few unequal bracts, the inner ones often coloured. Florets usually 5, purple or rarely white. — Flow. February to May.

N. d. Banks of the Mahmudîye-canal near Alexandria (G. Maire).

Very common in the temperate regions of the northern hemisphere in the Old World.

544. (4.) **Aster** Linn.

Herbs, usually erect, with alternate, entire or toothed leaves, narrow linear in the British species. Flower-heads in terminal corymbs. Involucral bracts imbricated in several rows. Outer florets not very numerous, forming a purple or white spreading ray, but sometimes wanting, those of the disk tubular, 5-toothed and yellow.

Branches of the style somewhat flattened and pointed. Anthers without tails. Achenes flattened with a pappus of many hairs.

A very numerous North American genus, with a few species spread over northern Asia, Europe, and some other parts of the world. Several of the North American ones are known among the autumnal plants in our flower-gardens under the name of Michaelmas Daisies.

A. Involucre well imbricated; the bracts appressed and coriaceous, with short and abrupt mostly obtuse herbaceous or foliaceous spreading tips (the outermost sometimes loose and more foliaceous): achenes narrow. 5—10-nerved, from minutely pubescent to glabrous: pappus mostly more rigid than in any of the following: rays showy, blue or violet: leaves of firm texture, more or less scabrous . . . . . 1. **A. radula.**

B. Involucre and usually branchlets viscidly or pruinose-glandular, therefore more or less graveolent, either well imbricated or loose: rays showy, violet to purple: achenes mostly several-nerved and narrow: pubescence not sericeous: leaves all entire or lower with few and rare teeth, except in some forms; cauline all sessile or partly clasping: true perennials, mostly multiplying by subterranean rootstocks or other shoots . . . . . 2. **A. integrifolius.**

C. Heads and inflorescence various: no cordate petioled leaves: radical leaves all acute or attenuate at base: not glandular nor viscid, nor silky-canescent: akenes compressed, few-nerved . 3. **A. Novi-Belgii.**

1319. (1.) **Aster radula** Ait. Hort. Kew. III (1811), p. 210. — DC. Prodrom. V, p. 230. — Torr. and Gray Flor. II, p. 106. — Aster nudiflorus Nutt. Gen. II, p. 157. — Nearly glabrous or with some scattered hairs: stem slender and strict, 30—70 cm or more high, bearing few or solitary mostly slender-pedunculate heads: leaves veiny, oblong-lanceolate or narrower, acuminate, somewhat hispidulous-scabrous, thinnish (inclined to be rugulose in drying, about 5 cm long, 6—18 mm wide), each margin with 3—7 serratures toward the middle; upper cauline sometimes oblong-ovate with subcordate sessile base involucre nearly hemispherical, 6—10 mm high; its bracts in few series, obtuse, ciliolate; the outermost oblong, inner narrower, shorter than the disk: rays 5 mm to 10 cm long, pale violet; achenes glabrous, striate-nerved. — Flow. March to April.

N. d. Rosetta; Zaqaziq, naturalized.

An North American native.

1320. (2.) **Aster integrifolius** Nutt. Trans. Americ. Phil. Soc. Nov. Ser. VII (1841), p. 291. — Torr. and Gray Flor. II, p. 111. — Stem mostly 30 cm or more high, stout, sparsely leafy, villous-pubescent but glabrate, bearing few or several racemosely or thyrsoidly disposed heads: leaves of firm texture, oblong or spathulate (the larger 8—14 cm long) or the smaller upper ones lanceolate, sometimes obsoletely repand-serrulate, apiculate, traversed by a strong midrib, venulose-reticulated, glabrate, half-clasping; lowest tapering into a long stout wing-margined petiole with clasping base: heads fully half-inch high, hemispherical: involucre and branchlets viscid-glandular; its bracts few-ranked, linear, ascending, not squarrose; the outher sometimes short and rather close, commonly larger and more foliaceous, nearly equalling the inner; these equalling the disk: rays 15—25, bluish-purple, half-inch long: achenes compressed-fusiform, 5-nerved, and sometimes with intermediate nerves, sparsely pubescent: pappus decidedly rigid. — Flow. March to April.

M. ma. Alexandria, naturalized near Behig (Muschler), probably recently introduced.

Common in the Cascade Mountains of Oregon, also in South Colorado, Sierra Novada and California.

1321. (3.) **Aster Novi-Belgii** L. Spec. Plant. ed. II (1763), p. 877. — Aster floribundus Willd. Spec. III, p. 2048. — Aster laxus Torr. and Gray Flor. II, p. 134. — Stem nearly smooth, corymbose-panicled above; leaves long, lanceolate, acuminate, shining above, the lowest narrowed at the base, and serrate in the middle, the upper sessile or partly clasping; heads solitary or few on the rigid branchlets; scales of the involucre linear, with green and subulate, or broader and abruptly pointed spreading tips; rays purplish blue. — Flow. March to April.

N. v. Naturalized near Luksor.

Common plant in North and Middle America.

545. (5.) **Erigeron** Linn.

Capitula heterogamous; flowers of ray numerous 1—∞-seriate pistillate, disk-flowers perfect (or staminate). Involucre hemispherical or campanulate, scales subbiseriate narrow, outer usually rather stouter. Receptacle naked (more rarely alveolate and fimbrilliferous). Ray-florets all or outer only ligulate, ligule narrow or filiform; disk-florets tubular, slightly dilated to the 5—4-toothed mouth. Anther-base obtuse unappendaged. Style-branches more or less flattened, lanceolate or ovate-lanceolate (rarely, linear) papillose. Achenes much or slightly compressed, often with reniform margins.

Pappus setaceous, 1-seriate (or biseriate). — Annual or perennial herbs. Leaves alternate, entire, toothed (or divided). Capitula various in size, solitary or cymose. Ray violet purple or white.

A large genus of the temperate regions of both hemispheres.

A. Pistillate flowers all strap-shaped. Pappus in 1 row . . . . . 1. **E. canadensis.**
B. Outer pistillate flowers strap-shaped, inner-ones filiform. Pappus in 1 row.
I. Involucral-bracts linear-lanceolate . . . 2. **E. Karwinskyanus.**
II. Involucral-bracts linear-spathulate . . . 3. **E. alpinus.**
C. Pistillate-flowers all filiform. Pappus in 2 rows 4. **E. crispus.**

1322. (1.) **Erigeron canadensis** L. Spec. Plant. I (1753) p. 863. — Boiss. Flor. Or. III, p. 163. — DC. Prodrom. V, p. 289 — Torr. and Gray Flor. II, p. 167. — A stiff, erect annual, 30 to 60 cm high, glabrous, except a few long, spreading hairs. Leaves narrow, and entire or slightly toothed. Flower-heads very small and numerous, forming a long, narrow, leafy panicle. Florets minute, the outher ones filiform, scarcely longer than the involucre, white or slightly tinged with red; central ones tubular, yellowish-white. — Flow. March to April.

M. ma. Alexandria-West near Behig, probably recently introduced (Muschler).

A native of North America.

1323. (2.) **Erigeron Karwinskyanus** DC. in Prodrom. V (1836), p. 285. — A stiff erect perennial plant or a small bush of 30 to 50 cm in height puberulous. Stem-leaves obovate longly cuneate, glabrous on both surfaces, somewhat ciliate at the base, 3—5-toothed at the apex, teeth large, obtuse, mucronate; the upper ones entire; capitula pedunculate loose corymbosed; involucral-bracts glabrous linear-lanceolate; rays twice as long as the disk. — Flow. March.

M. ma. Alexandria, often in gardens and sometimes naturalized, introduced from the Riviera.

A native of Tropical America.

1324. (3.) **Erigeron alpinus** L. Spec. Plant. I (1753), p. 864. — DC. Prodrom. V, p. 291. — Boiss. Flor. Or. III, p. 165. — Erigeron olympicum Schott and Kotschy Oesterr. Wochenbl. VIII, p. 230. — Rchbch. Ic. XVI, tab. 914. — Engl. Bot., tab. 464. — Erect herb, with strict ascending, sparsely pubescent striate branches, terminating in solitary or subsolitary capitula. Leaves (cauline) alternate or rarely subopposite, linear-oblong or elongate-lanceolate, mucronate, with a wide sessile somewhat clasping base, submembranous, quite

entire, thinly strigillose on both sides or glabrate, 1-obscurely 3-nerved, ranging up to 6 cm long by 6 mm broad. Capitula hemispherical, ∞-flowered, 1—2 cm diameter, on erect strigose-hispid peduncles 2—9 cm long. Scales of involucre subbiseriate, narrowly linear-lanceolate, acute, pilose with whitish spreading rather stiff and broad hairs; inner ones rather more and outer ones rather less than 5 mm long. Receptacle naked, 5 mm diameter, Ray-flowers 1-seriate, purple, not broader than involucral scales and exceeding them by about the length of the latter, erect-patent. Interior female flowers tubular-filiform, numerous. Achenes narrowly obovoid-oblong, compressed, with 2 strong lateral nerves, thinly pilose. Pappus uniseriate, subrufous, barbellate, twice length of achene. — Flow. February to March.

M. ma. Behig, in old quarries.

In mountain pastures, in Northern Europe, Asia, and America, to the Arctic regions, and in the higher mountain-ranges farther south.

1325. (4.) **Erigeron crispus** Pourr. in Mem. Acad. Toulouse III (1788), p. 318. — Erigeron linifolius Willd. Spec. Plant. III, p. 1955. — Boiss. Flor. Or. III, p. 169. — Rchbch. Ic. XVI, tab. 915. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 84 no. 510. — Conyza ambigua DC. Flor. Franc. V, p. 468. — An annual plant 30—90 cm high, rather strict, bearing loosely paniculate heads, hirsute, also somewhat scabrous with minute apressed pubescence: upper leaves narrowly linear, mostly entire, narrowed downward; lowest broader, incisely toothed or laciniate; involucre cinereous-pubescent: ligules very small, shorter than the style and the at length ferruginous pappus. — Flow. March to April.

M. ma. Mariut; Behig; Alexandria-West and -East; Mandara. — **N. d.** Damanhur; Mansura; Mehallet-el-Kebîr; Zaqaziq; Tanta; Qalyub; Cairo. — **N. f.** Medînet-el-Fayûm; Senûris; Tenhur; Tamîa. — **N. v.** Siut; Luksor; Aswân. — **O.** Great Oasis. — **D. i.** Sâlihîya; Ismailia. — **D. a. sept.** Suez.

Local name: sibl-el-fâr (Schweinfurth); rihân-fâssed (Schweinf.).

Common in the Tropics and Subtropics of both the New and Old World.

546. (6.) **Conyza** Linn.

Involucre either ovoid with the bracts imbricate in several rows, usually broader, more rigid and less acuminate than in Blumea, or hemispherical with narrow bracts. Flowers all tubular, those of the circumference, female, filiform, usually very numerous, those of the disk broader, hermaphrodite, but usually sterile, few, or the heads almost dioecious. Anthers with short fine tails or points at the base.

Style (of the disk-florets) simple, papillose towards the end, or very rarely branched. Achenes small, usually somewhat compressed. Pappus of numerous capillary bristles. — Shrubs, undershrubs or perennial herbs (rarely if ever annuals). Leaves alternate, entire toothed or rarely almost pinnatifid. Flower-heads in terminal corymbs, sometimes contracted into clusters or rarely solitary.

The genus comprises several N. and S. American species, a very few from Africa and tropical and subtropical Asia.

A. Glabrous plants . . . . . 1. **C. Bovei.**
B. Hairy plants.
I. Involucral bracts pauci-seriate . . . . . 2. **C. aegyptiaca.**
II. Involucral bracts many-seriate . . . . . 3. **C. Dioscoridis.**

1326. (1.) **Conyza Bovei** DC. Ann. Scienc. Natur. (1834), p. 261. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 530. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Erigeron Bovei Boiss. Flor. Or. III, p. 168. — A perennial plant, 30 cm to 2 m high, glabrous; stems woody below, erect, leafy, corymbose, few-flowered. Leaves sessile, linear-lanceolate, acute, remotely denticulate or wavy-margined, the upper half-clasping at the base. Peduncles rather long, nearly naked; heads 6 mm broad; scales of the involucre short, somewhat speading, the rest appressed, linear, acuminate, scarious except the nerve, about as long as the pappus; pistillate flowers numerous. — Flow. March to April.

O. Great Oasis. — **D. a. sept.** Wady Qattar.

Also known from Arabia Petraea.

1327. (2.) **Conyza aegyptiaca** Ait. Hort. Kew. III (1811), p. 183. — Erigeron aegyptiacus L. Mant., p. 112. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 511. — Boiss. Flor. Or. III., p. 169. — DC. Prodrom. V, p. 382. — Conyza lineariloba DC. Prodrom. V, p. 385. — Erigeron serratum Forsk. Flor. aeg.-arab., p. 148. — Jcq. Ic. Vindob. III, tab. 19. — A coarse, erect, hirsute annual or biennial, sometimes 30—60 cm high and nearly simple, except the terminal panicle, sometimes divaricately branched below the middle. Leaves lanceolate or oblong, obtuse or rarely almost acute, coarsely toothed in their whole length or at the base only, or pinnatifid with ovate oblong or rarely linear lobes. Flower-heads rather large for the genus, shortly pedicellate, in dense cymes or clusters, forming a terminal corymbose panicle. Involucral bracts narrow, subulate-acuminate, the inner ones above 6 mm long. Flowers and pappus not exceeding the involucre. Ray-flowers exceedingly numerous, all filiform; disk-florets numerous, but varying in different heads. — Flow. March to April.

N. d. N. f. N. v. Common in waste places, often in deep sandy places. — **O.** Dakhel.

Local name: dimsîs (Schweinfurth); nashshâsh-ed-dubbân (G. Roth); Kodda.

Extends through Tropical Africa and eastward through India to China and Australia. Very variable in depth and breadth of the leaf-lobes.

1328. (3.) **Conyza Dioscoridis** Desf. Tabl., ed. II (1815) p. 114. — Boiss. Flor. Or. III, p. 217. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. DC. no. 531. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Pluchea Dioscorides DC. Prodrom. V., p. 450. — Baccharis Dioscorides L. Amoen. IV, p. 289. — Baccharis aegyptiaca Forsk. Flor. aeg.-arab., p. 213. Conyza bacchariodes Schultz Bip. in Herb. Abyss., sect. I no. 146. — Blumea bacchariodes Sch. Bip. in Herb. Schimp. Abyss., sect. II no. 1018. — Conyza modatensis Sch. Bip. in Schweinf. Beitr. Flor. Aeth., p. 144. — Shrub of 1,80 m or more in height. Branches terete, striate, more or less puberulous or pubescent towards the extremities, rarely glabrous. Leaves oval-oblong, narrowly elliptical or linear-lanceolate, acute or subacute, narrowed towards the sessile or shortly petiolate often auriculate-cordate base, serrate, denticulate, or subentire, puberulous or glabrous, 2—5 cm long, 5 mm to 2 cm wide, membranous. Flower-heads campanulate or ovoid, 2—3 lines wide, pedicelled or usually sessile, few together in stalked clusters, collected in ample much-branched corymbose or globose terminal panicles. Involucral bracts many-seriate; inner linear or linear-lanceolate, acute or apiculate, sometimes fimbriate-dentate, glabrous or nearly so, caducous; outer shorter, ovate, puberulous or pubescent, acute or obtuse, and apiculate, persistent. Receptacle narrow, naked. Achenes glabrous or nearly so, 4—7-ribbed, angles paler. Pappus of 1 series, sordid. — Flow. February to April.

M. ma. M. p. N. d. N. f. N. v. O. D. i. D. a sept. Rarely cultivated in gardens, often subspontaneous.

Local name: barnûf.

Occeurs also in Tropical Africa, Natal, Arabia and Palestine.

547. (7.) **Grangea** Adans.

Capitula heterogamous, disciform; outer flowers 1—∞-seriate female, disk-fl. ∞ bisexual. Involucre at first hemispherical, scales pauciseriate nearly equal, inner with membranous margins. Receptacle convex or conical naked. Corolla of the female flower narrow-tubular, mouth toothed 2—4-fid; of the bisexual flower campanulate, 4—5-fid narrowed into slender tube. Anther-base obtuse. Style-branches with short deltoid appendix. Achenes subterete or

but slightly compressed, with or without a distinct cartilaginous apex, equalling or narrower than the ovary in diameter, bordered by the minute free subpaleaceous teeth of the pappus. — Erect or ecumbent more or less hairy herb. Leaves alternate pinnatifid. Capitula yellow of medium-size, terminal or leaf-opposed.

A small genus widely distributed through Egypt, parts of Asia and tropical Africa.

1329. **Grangea maderaspatana** Poir. Encyclop., Supplem. II (1811) p. 825. — Boiss. Flor. Or. III, p. 176. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 512. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Cotula Sphaeranthus Link Enum. Plant. Hort. Berol. II, p. 344. — Grangea Sphaeranthus C. Koch in Bot. Zeitg. I (1843), p. 41. — Grangea aegyptiaca DC. Prodrom. V, p. 373 (only a form with thickened apex of the achene more or less constricted). — Grangea procumbens DC. Prodrom. V, p. 373 (a form with which the apex of the achene is not or but slightly thickened, and ray-flowers are 2-seriate). — Grangea Adansonii Cass. Dict. XIX, p. 304. — Procumbent, or ascending, branching, often freely from the crown, hirsute herb, varying from a few cm to 30 cm or more. Leaves obovate pinnatifid winged to the sessile base, 1—8 cm long, lobes oblong or obovate obtuse entire or toothed. Capitula 5—7 mm diameter, solitary or 2—3 together, terminal or leaf-opposed on peduncles of 5 mm to 2,5 cm. Involucral scales oval obtuse pubescent or hirsute. — Flow. February to April.

N. d. Alexandria; Damietta; Mehallet-el-Kebîr; Fakus; Cairo; Shubra. — **N. f.** Medînet-el-Fayûm; Tamîa; Senûris. — **O.** Great Oasis.

Also known from Tropical Africa.

548. (8.) **Ceruana** Forsk.

Capitula heterogamous disciform many-flowered; outer florets female, 2—3-seriate, disk-ones bisexual. Involucre hemispherical, scales 2—3-seriate, herbaceous, outer often leafy. Receptacle flat, tubercled, paleaceous, paleae coriaceous linear exceeding the ovaries. Corolla of the female flowers narrow-tubular, mouth obliquely toothed or with a rudimentary ligule; of the bisexual flowers campanulate narrowed into tube. Anther-base obtuse entire. Style-branches with lanceolate acute papillose appendices. Achenes compressed or obscurely angled, crowned with a minute papillose-setiform annulus. — Erect rigid herb. Leaves alternate toothed or pinnatifid. Capitula erect, cymose, yellow.

Based upon the following species; occurs in Egypt and Tropical Africa.

1330. **Ceruana pratensis** Forsk. Flor. aeg.-arab. (1775), p. 74. — Boiss. Flor. Or. III, p. 177. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 513. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — DC. Prodrom. V, p. 488. — Ceruana rotundifolia Cass. Dict. XII, p. 123. — Ceruana senegalensis DC. Prodrom. V, p. 488. — Buphthalmum pratense Vahl Symb. Bot. I, p. 75. — Del. Illustr. Flor. d'Eg., tab. 48 fig. 2. - Ceruana fruticosa Less. Synops. Compos., p. 202. — Erect branched hirsute or pubescent annual, 30—60 cm high; stem strict or ascending; branches terete faintly striate. Leaves obovate, rounded at the apex, pinnatifid or coarsely toothed, hairy on both sides, more or less narrowed to a clasping sessile often auricled base, or petiolate, lower $2^1/_2$—$5^1/_2$ cm long; upper shorter, sometimes lyrate or subentire. Capitula 8—11 mm diameter, subsessile or on peduncles varying to 5 cm terminal and leaf-opposed along the branches of dichotomous cymes, surrounded at or near the base by 2 or more bracts equalling or overtopping the heads. Scales of involucre herbaceous unequal; outer rather exceeding the disk, uni-biseriate, erect, hairy, lanceolate, acute; inner about equalling the disk, coriaceous, linear-oblong, acute. Paleae of receptacle fimbriate-ciliate at base, slightly dilated above, exceeding ovaries. Ray flowers 2—3-seriate. — Flow. March to April. — Generally used for making little brooms, found already in old Egyptian Tombs.

M. ma. Abusîr; Mariut; Behig; Alexandria-West and -East. — **N. d. N. v.** Often in sandy places.

Local name: karwân (Forsk., Del.); generally: shedîd; shideyd.

Also known from Tropical Africa.

549. (9.) **Laggera** Sch. Bip.

Capitula heterogamous, many-flowered, disciform; outer flowers female numerous, filiform; disk-florets tubular. Involucre campanulate or hemispherical; scales ∞-seriate, usually rather rigid, the outer frequently recurved, ovate-lanceolate or linear-lanceolate to narrow-linear, outer smaller. Receptacle naked. Corolla of the female flowers tubular, filiform, mouth dendate; of inner flowers tubular toothed. Anther-base 2-dentate, often unequally or shortly sagittate, not distinctly tailed nor with the produced bases cohering in pairs. Style-branches narrow-linear papillose. Achenes glabrous or thinly pilose, the hairs often in faint longitudinal rows; pappus 1-seriate, setiform. — Herbs or frutescent below, tomentose pubescent scabrid or glabrate. Leaves alternate, simple, entire or denticulate, decurrent. Capitula varying to 2 cm diam., variously panicled or axillary.

A small genus of the Old World Tropics.

1331. **Laggera aurita** Sch. Bip. in Kotschy and Schimp. Herb. Abyss. sect. III, no. 1769. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 529. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Conyza aurita L. Supplem., p. 367. — Blumea aurita DC. Prodrom. V, p. 449. — Conyza villosa Willd. Spec. Plant. III, p. 1929. — Blumea senegalensis DC. Prodrom. V, 449. — Erigeron stipulatum Schum. and Thoming Guin. Plant., p. 385. — Conyza guineensis Willd. Spec. Plant. III, p. 745. — Pubescent or loosely pilose erect herb of 60—90 cm in height; branches striate, leafy. Leaves alternate, membranous; radical obovate or elliptical, unequally broadly toothed or pinnatifid toward the winged petiole; cauline obovate-oblong or oblong, deeply toothed or pinnatifid or lyrate-pinnatipartite, acute or obtuse, sessile and auricled at the base, often interruptedly decurrent in a double series of spreading lobes; $2^1/_2$—$8^1/_2$ cm long. Capitula campanulate, 8 to 12 mm diam., ∞-flowered on unequal pedicels varying to $2^1/_2$ cm long, in wide corymbose or diffuse terminal panicles. Scales of involucre pluriseriate, narrowly linear-lanceolate, acutely acuminate; outer ones loose, shorter, densely hirsute with white spreading hairs. Receptacle naked. Ray-flowers filiform; ligule 0. Anthers tailed at base, tips ovate-oblong, obtuse. Achenes thinly pilose, obcurely angular, with small perforated callus. Pappus uniseriate, thin, white. — Flow. March to April.

N. v. Siut; Luksor; Aswân. — **D. a. mer.** Gebel Silsile (Schweinfurth).

Local name: stemma lekka (Schweinfurth).

Occeurs also in Tropical Africa, Arabia, Cape Verde Islands, Scinde and India.

550. (10.) **Sphaeranthus** Linn.

Capitula heterogamous few- (3—7 usually in Egyptian species) flowered, collected on a plane convex ovoid or elongate common receptacle, in dense hemispherical ovoid or globose heads. Scales of involucre (3—10), subequal, often cymbiform or conduplicate, subtended by a scale of common axis (axial scale). Pistillate flowers 2—5 or more; corolla tubular, often slightly narrowed to the minutely 3-dentate mouth; hermaphrodite (or sterile) flowers 1 or 2—3; corolla tubular, 5-dentate. Anther-tails short, cohering in pairs, apical connective ovate. Style strongly papillose, undivided or shortly bifid. Achenes subterete or slightly compressed, oblong or narrowed below; pappus 0. — Herbs with alternate, lanceolate oblong or linear, dentate or denticulate, decurrent leaves. Heads singly terminating the stem and numerous branches; capitula small, closely packed

A small genus of the Old World Tropics.

A. Bisexual flowers 2—3 in each capitulum . . . . 1. **S. suaveolens.**
B. Bisexual flowers solitary, one in each capitulum 2. **S. nubicus.**

1332. **Sphaeranthus suaveolens** DC. Prodrom. V (1836), p. 370. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 528. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Sphaeranthus indicus Gaertn. DC. Fructib. II p. 413 tab. 164, fig. 5 not of Linn. — Sphaeranthus abyssinicus Steetz in Peters Mozamb. Bot. II, p. 411. — Sphaeranthus angustifolius Sch. Bip. in Kotshy Herb. Nub. no. 463. — Boiss. Flor. Or. III, p. 215. — Erect or ascending herb, 30—60 cm high, branched, glabrous or extremities puberulous; stem and branches alate. Leaves narrow-elliptic oblong or linear, acute or subacute, usually narrowed to the decurrent base, dentate or denticulate, 5—10 cm long, 2 mm to $2^1/_3$ cm broad. Capitula few-flowered, densely crowded in ovoid-globose shortly pedunculate terminal and lateral heads 5 to 15 mm in diam., solitary or occasionally 2—3 approximated; peduncles $^1/_2$—5 in. alate. Scales of partial involucre 5—7 obovate- or linear-oblong or linear, obtuse, apiculate, ciliate above. Outer axial scales short, puberulous, ciliate. Common receptacle ovoid. Flowers white or rosecoloured. Bisexual flowers 2—3 in each capitulum. Achenes thinly pilose.

N. d. Alexandria; Rosetta; Damietta; Damanhûr; Mehallet-el-Kebîr; Tanta; Qalyub; Cairo.

Local name: Zaghlift; forqeyh; sirr-el-ward (Schweinfurth).

Aslo known from Tropical Africa, where the species is common.

1333. (2.) **Sphaeranthus nubicus** Sch. Bip. in Steetz in Peters. Mozamb. II. Bot. (1862), p. 418. — Oliv. Flor. trop. Afr. III, p. 335. — Sprunnera alata Sch. Bip. in Kotshy It. Nub., no. 209. — Oligoapis Sprunnera Steetz in Peters Mozamb. Bot. II, p. 418. — Annual, erect, little branched, or diffuse with numerous ascending branches, more or less glandular-hirtellous, about 30—70 cm high; stem and lower branches terete, faintly striate, upper branches alate. Leaves narrowly lanceolate or linear, acute or subacute, mucronate, denticulate, sessile, decurrent, membranous, 2—6 cm long by 2—8 mm wide. Capitula 3—9 (usually 4-) flowered, of which 1 fl. (central) only is male, crowded many together in subhemispherical subsessile or shortly pedunculate heads 8—12 mm diam., terminating the stem and branches. Scales of partial involucre 3—5, scarious, linear-oblong, obtuse, apiculate, ciliate at apex, otherwise glabrous. Outer axial scales nearly equalling the head, closely appressed, broadly ovate, apiculate, pubescent. Common receptacle slightly convex. Corolla with scattered sessile glands. Achenes thinly hairy. — Flow. March.

N. v. mer. Island of the Sirdar near Aswân.

Also known from Cordofan and Lake Tshad.

551. (11.) **Evax** Linn.

Heads small, many-flowered, discoid, aggregated, in dense clusters. Involucral-bracts in about one row, scarious gradually passing into pales on the receptacle. Receptacle conical, naked at the tip. Marginal flowers female, in many rows, filiform, denticulate, each set in the axil of a bract; central flowers few, male, 4-toothed. Anthers caudate at the base. Branches of the style filiform. Achenes compressed, rarely somewhat terete or oblong, bald. — Small, white-woolly herbs, almost stamless.

A small genus widely distributed in Southern Europe and the Mediterranean region.

A. Achenes ovate, pruinous . . . . . 1. **E. contracta.**
B. Achenes oblong-cylindrical, scarious . . . . . 2. **E. anatolica.**

1334. (1.) **Evax contracta** Boiss. Diagnos. Plant. Or., ser. I fasc. XI (1849), p. 3. — Flor. Or. III, p. 243. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 542. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 165. — A small annual plant. 5—10 cm high, or rarely more, stemless, or 1—2-branched from the neck. Leaves oblong to spathulate, tapering to a petiole, with dilated sheath. Woolly scales of the involucre and ovate pales with abruptly acuminate setaceous tip. Achenes ovate, pruinose. — Flow. February to April.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Alexandria-West and -East; Mandara; Abukîr.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Mediterranean region of Europe and Syria.

1335. (2.) **Evax anatolica** Boiss. and Heldr. Diagnos. Plant. Orient., Ser. I fasc. XI (1849) p. 2. — Flor. Or. III, p. 243. — Post Flor. of Palest. Lin. and Syria, p. 414. — Evax palaestina Boiss. Diagnos. Plant. Or., ser. I fasc. XI p. 2 (only a larger form.). — An annual herb, 2—5 cm high, or sometimes somewhat more, stemless or branching, from the neck or above. Leaves oblong to linear-lanceolate, acute, 2—3-times as long as the cluster. Scales of the involucre and pales oblong-spathulate, boat-shaped, narrow at the glabrous base, woolly at the back, tapering abruptly into a short, slender point protruding a little from the wool; achenes oblong-cylindrical, barely compressed, slightly scabrous. — Flow. March to April.

M. ma. Behig rare (Muschler).

Also known from Greece, Arabia Petraea Palestine, Syria and Mesopotamia.

552. (12.) **Ifloga** Cass.

Heads many-flowered, discoid. Involucre imbricated, scales numerous, gradually changing into pales. Receptacle elongated, naked at centre. Marginal flowers pistillate, few, filiform, in axils of pales; central flowerets tubular, perfect and staminate. Anthers caudate. Branches of style filiform, elongated in the pistillate, very short in the perfect flowers. Achenes of the pistillate flowers bald, of the perfect with 1 row of feathery-tipped pappus. — Distinguished from Filago by the feathery tip of the pappus.

A small genus of only the following species in North Africa and 7—8 others in South Africa to India.

1336. **Ifloga spicata** Sch. Bip. ap. Webb Phyt. Can. III (1836 to 1850), p. 310. — Boiss. Flor. Or. III, p. 248. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 546. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 760. — Aschers. Flor. Sirbon., p. 812 no. 20. — Aschers. Flor. Rhinocol., p. 798 no. 140. — Aschers.-Schweinf. Primit. Flor. Marmar., p. 653 no. 165. — Chrysocoma spicata Forsk. Flor. aeg.-arab., p. LXXIII no. 433. — Ifloga Fontanesii Cass. Dict. VII, p. 13. — Gnaphalium supracanum Flor. Graec. IX, p. 47 tab. 861. — Gnaphalium cauliflorum Desf. Flor. Atlant., tab. 2. — An annual plant 5—10 cm high or sometimes somewhat more, stems simple or branching from the neck, forming leafy spikes 1—4 cm long. Leaves linear-subulate, protruding from the spike, tomentellous or glabrescent. Heads 2—3 in a cluster; scales of the involucre scarious, ovate, tapering into a long point. — Flow. February to April.

M. ma. M. p. D. l. D. i. D. a. sept. D. a mer. A common plant in deep sandy places.

Local name: kreyshet-el-djedj (Schweinfurth); gumburr (Schweinfurth, Klunzinger); bu-lefen (Ascherson); kurbâl (Ascherson); shedjret-el-ma'iza (Ascherson).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Arabia Petraea, Palestine and Syria.

553. (13.) **Filago** Linn.

Capitula heterogamous disciform, collected in sessile globose terminal heads; outer flowers ♀ ∞-seriate, central ☿ usually few, fertile or sterile. Involucre small, outer scales ovate-lanceolate, inner elliptic-ovate, apiculate with broad membranous margins, outer more or less cottony, singly subtending ♀ flowers. Corolla tubular, of ♀ fl. filiform. Anther-base tailed. Style-branches linear or oblong obtuse. Achenes small, subterete or slightly compressed; setae of

pappus slender, equalling the florets. — Annual herbs, usually cottony or tomentose. Leaves alternate, entire. Heads of capitula cottony, usually involucrate, of the primary axis overtopped by axillary branches originating immediately below and terminating in similar heads.

A small genus of Europe, Asia and North Africa, one or two being widely diffused weeds.

A. Capitula numerous . . . . . 1. **F. spathulata.**
B. Capitula solitary . . . . . 2. **F. mareotica.**

1337. (1.) **Filago spathulata** Presl Del. Prag. (1822), p. 93. — var. **prostrata** (Paerl.) Boiss. Flor. Or. III (1875), p. 246. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 544. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 260. — Aschers. Flor. Rhinocol., p. 798 no. 139. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 162. — Filago prostrata Parlat. Piant. Nuov., p. 11. — An annual plant, much branched, prostrate. Leaves numerous, erect, oblong to linear-lanceolate, those of the stem not tapering at the base. Clusters dense, globular, sessile in the forks or terminal; headlets 20—30; involucre obconical, obtusely pentagonal; scales erect, loose, lanceolate, with a tapering subulate point. — Flow. February to March.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Alexandria-West and -East; Abukîr. — **M. p.** Rosetta; Damietta; El-'Arîsh. — **D. l. D. a. sept.** Common in deep sandy places.

Local name: kurbât (Muschler).

Common in all parts of the Mediterranean basin.

1338. (2.) **Filago mareotica** Del. Illustr. Flor. d'Eg. (1813), p. 274 tab. 47 fig. 2. — Boiss. Flor. Or. III, p. 246. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 545. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 164. — Filago ramosissima Lange in Ind. Hort. Hauniensis (1855), p. 24. — Willk. and Lange Prodrom. Flor. Hisp. II, p. 55. — Filago floribunda Batt. and Trab. Fl. Alg. I, p. 442. — A small annual plant 2—4 cm high or sometimes somewhat more, appressed canescent-hairy, branching from the base, branches somewhat indurate. Leaves short, erect, linear-oblong, the floral-ones as long as the heads and often involucral-like; heads ovate, solitary or rarely geminate; involucral scales tomentose pentagonous scarious, imbricated, erect, in 5 rows concave, oblong-lanceolate acute and often somewhat obtuse. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Mariut; Alexandria-West and -East; Mandara; Abukîr.

Also known from Southern Spain, Tunisia and Tripolitania.

554. (14.) **Gymnarrhena** Desf.

Heads many-flowered, discoid. Involucre many-rowed, scales boat-shaped, coriaceous, rigid. Receptacle convex, bristly at margin. Marginal flowers pistillate, in many rows, each subtended by a scale; the corolla slender, tubular, 3-toothed; the pappus in several rows, the outer consisting of scabrous bristles, the inner of 7—9, lanceolate-linear, acuminate pales; style 2-lobed; achenes obconical, villous. Central flowers few, minute, abortive, staminate, not subtended by pales; the corolla funnel-shaped; pappus in 1 row of lanceolate, acuminate, ciliated pales; style simple, club-shaped, acute, papillose; akenes filiform, glabrous. — Herbs, stemless or nearly so, with crowded heads.

A small genus in the Sahara region.

1339. **Gymnarhena micrantha** Desf. Mem. Mus. Paris IV (1818), p. I tab. 1. — Boiss. Flor. Or. III, p. 240. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 542. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 760. — Aschers. Flor. Rhinocol., p. 798 no. 138. — Frankia Schimperi Hochst. and Steud. in Schimp. Plant. Arab. — Cryptadia Euphratensis Chesney Narr. Euphorb., p. 441 tab. 95. — An annual plant, 2—3 cm high, or sometimes somewhat more. Leaves linear-lanceolate, 10 cm long, acutish, with dilated, membranous base, rosetted around the sessile, clustered heads, and much longer than the cluster. Scales of the involucre glossy, longer than the flowerets, mucronulate. — Flow. March to April.

M. ma. Mariut; Behig; Alexandria-West. — **M. p.** El-ʿArîsh. — **D. i.** Wady-el-ʿArîsh. — **D. a. sept.** Galala.

Local name: khirsheyf (Ascherson).

Also known from Spain and Arabia Petraea to Mesopotamia.

555. (15.) **Lasiopogon** Cass.

Heads many-flowered, discoid, heterogamous. Involucre in 2 rows. Receptacle flat, naked. Outer flowerets in several rows, pistillate, filiform; central flowers perfect, tubular, 4—5-toothed. Anthers caudate. Achenes obovate, somewhat compressed, all pappose; pappus in 1 row. — Annual, dwarf, wooly herbs.

A small genus widely distributed in the Orient.

1340. **Lasiopogon muscoides** (Desf.) DC. Prodrom. IV (1837), p. 246. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 535. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Gnaphalium muscoides Desf. Flor. Atlant. II, p. 267 tab. 231. — Lasiopogon lanatum Cass. Bull.

Phil. (1818), p. 75. — A small annual plant, 5—10 cm high, or sometimes somewhat more, much branched from the base; branches filiform, prostrate. Leaves linear to oblong-spathulate, the floral ones about as long as the clusters, which are concealed in the fine wool. Scales of the involucre scarious, linear, obtuse. — Flow. March to April.

M. ma. Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta. — **O.** Siwa. — **D. l.** Kafr-Hakim; Pyramids of Gîza and Zawîyet-el-'Aryân. — **D. a. sept.** Often in the Wadies on calcarious ground.

Local name: kreyshet-el-djedj (Schimper).

Also known from Arabia Petraea, Palestine and Syria.

556. (16.) **Phagnalon** Cass.

Capitula heterogamous, disciform, many-flowered; outer flowers ∞ female, central ones ∞ bisexual. Involucre campanulate or subhemispherical, scales ∞-seriate, imbricate and scarious or membranous, outer gradually shorter. Receptacle plane naked (or foveolate). Corolla of the female flower tubular, filiform, minutely dentate, of the bisexual flower tubular but slightly wider above, 5-toothed. Anther-base scarcely or obscurely produced at the base; apical connective ovate obtuse or retuse. Style-branches obtuse or subtruncate. Achenes small; pappus of slender 1-seriate setae. — Small shrubs ascending or decumbent, more or less whitish tomentose or glabrate. Leaves alternate, narrow. Capitula of medium size, pedunculate, solitary or loosely corymbose or axillary.

A small genus extending from the Atlantic Islands eastward into Asia.

A. Leaves acute.
  I. Leaves glabrescent on the upper surface . 1. **P. nitidum.**
  II. Leaves white-tomentose on the upper surface 2. **P. Barbeyanum.**
B. Leaves obtuse . . . . . 3. **P. rupestre.**

1341. (1.) **Phagnalon nitidum** Fresen. Mus. Senckenberg II (1835), p. 81 tab. 4 fig. 2. — Boiss. Flor. Or. III, p. 220. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 532. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — A perennial plant, 15—20 cm high, or sometimes somewhat more, stems ascending, simple or sparingly branched. Leaves oblong to linear, acutish, auricled at the base. Peduncles terminal; scales of the involucre glabrescent, glossy, scarious, with purplish-brown median nerve, and pellucid, ragged-toothed margin, the outer ones rounded-ovate, mucronate, the inner ones lanceolate, larger. — Flow. March to April.

D. a. sept. Wady Dugla; Wady Hof; Wady Rished near Helwân; Northern and Southern Galala.

Local name: khanâ-net-enna'ger (Schweinfurth).

Also known from Arabia Petraea.

1342. (2.) **Phagnalon Barbeyanum** Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 87 no. 534. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 760. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Phagnalon aegyptiacum Boiss. Flor. Or., Supplem. (1888) p. 292. — A somewhat shrubby plant, up to 20 or sometimes 35 cm high; stems and upper branches elongated into one-headed naked peduncles, like the whole plant whitish-canescent. Leaves rigid, on the upper surface pulverulent-tomentose, on the under surface whitish-tomentose, somewhat revolute at the margin, the lower ones oblong-linear, narrowed at the base, the other ones linear-lanceolate, half stem-clasping; involucral scales coriaceous, appressed, the inner ones ovate, acute; the other gradually larger and more acute, all floccose-tomentose at the back, in the upper part brownish-scarious, glabrous. — Flow. March to April.

D. a. sept. Wady Hof; Wady Rished near Helwân; Wady Hamâta.

Local name: sanûf (Ehrenberg); gera'it (Schweinfurth); goreyer (Schweinfurth).

Only known from Egypt.

1343. (3.) **Phagnalon rupestre** (L.) DC. Prodrom. V (1836), p. 396. — Boiss. Flor. III, p. 220. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 87 no. 533. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 160. — Conyza rupestris L. Mant., p. 113. — Phagnalon Tenorii Presl Flor. Sic. I, p. 29. — Conyza tomentosa Forsk. Flor. aeg.-arab., p. 148. — Rchbch. Icon. XVI, tab. 29 fig. 3. — An undershrub, 40—60 cm high, or sometimes somewhat more, appressed-canescent; stems numerous, ascending or erect. Leaves somewhat toothed, often wavy, the lower-ones oblong, tapering at the base, the rest oblong-linear, sessile. Peduncles from the upper axils single or in pairs; heads 1,2 cm long; involucral scales glossy, glabrous, very unequal, the lower ones leathery, ovate to linear, the upper-ones linear, all obtuse. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta. — Everywhere in sandy places.

Local name: ta'âm-el-arneb; motey (Forsk., Del.).

Also known from Italy, France, Spain, Morocco, Algeria, Tunisia, Tripolitania, Cyrenaica, Western Marmarica, Palestine and Syria.

557. (17.) **Gnaphalium** Linn.

Capitula heterogamous, discoid, outer flowers female 2—∞-seriate, disk-flowers fewer 1—15 bisexual. Involucre campanulate or ovoid of 2—3-multiseriate more or less scarious imbricate white yellowish or brown bracts, outer usually shorter. Receptacle naked or minutely fimbrilliferous. Female flowers filiform. Anther-base sagittate, finely tailed. Achenes subterete or slightly compressed, pappus uniseriate setaceous. — Herbaceous (or frutescent) woolly or tomentose, with alternate entire leaves, and clustered or variously cymose, rarely solitary, capitula.

A large widely dispersed genus, including some almost cosmopolitan species.

A. Leaves all sessile and more or less amplexicaul 1. **G. luteo-album.**
B. Leaves attenuate at the base into the short petiole, or only the upper ones sessile.
I. Capitula in subglobose clusters.
a) Achenes scabridulous . . . . . 2. **G. pulvinatum.**
b) Achenes smooth . . . . . 3. **G. crispatulum.**
II. Capitula in spike-like clusters . . . . . 4. **G. indicum.**

1344. (1.) **Gnaphalium luteo-album** L. Spec. Plant. I (1753), p. 1196. — Boiss. Flor. Or. III, p. 224. — Ic. Flor. Dan., tab. 1763. — DC. Prodrom. VI, p. 230. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 536. — Herbaceous, sometimes woody at the base, erect ascending or decumbent, simple or branched, 15—70 cm high. Stem and branches cottony, striate, subterete. Leaves spathulate, obtuse, or linear and sometimes acute, sessile, semi-amplexicaul, cottony on both sides, especially beneath, sometimes glabrate above, entire or vaguely crenulate, 2—6 cm long by 2—9 mm wide; upper smaller. Capitula campanulate, many-flowered, 4 mm long, sessile or subsessile, many together without intervening leaves, in crowded clusters at the ends of the stem and branches and from the upper axils, in corymbose or somewhat elongate cymes. Scales of the involucre pauciseriate, straw-coloured; innermost linear obtuse or subacute; intermediate ovate-lanceolate, obtuse; outer ovate, obtuse, woolly at base. Receptacle naked, flat, closely tubercled, 1 mm diam., bisexual flowers 4—9. Achenes oblong, subterete or slightly compressed, minutely papillose, otherwise glabrous. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. O. D. i. D. a. sept. Everywhere common, especially in moist sandy and waste places.

Local name: ra'râ' (Schweinfurth); sabûn'afrît (Ascherson); lubân (Ascherson).

A cosmopolitan weed.

1345. (2.) **Gnaphalium pulvinatum** Del. Illustr. Flor. d'Eg. (1813), p. 122 tab. 44 fig. 1. — Boiss. Flor. Or. III, p. 225. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 537. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — DC. Prodrom. VI, p. 231. — Diffuse or prostrate annual, lanate-tomentose all over; branches numerous, spreading, slender, terete, 6—9 cm long. Leaves spathulate, more or less obtuse, mucronate, attenuate at the base into the short petiole, 8—10 mm long. Capitula campanulate, 3 mm long, crowded in subglobose leafy or involucrate terminal clusters, about 1 cm diam. Scales of the involucre sub-triseriate, lanate, linear-lanceolate, subacute, membranous; inner a little longer than the florets, scarious, whitish or purplish at the apex. Bisexual florets 3—6. Female flowers numerous. Achenes scabridulois or nearly so.

N. d. Alexandria; Mansura; Benha-el-ʿAsel; Zaqaziq; Tanta; Qalyub; Cairo. — **M. f.** Medînet-el-Fayûm; Tamîa; Senhur; Senûris. — **N. v.** Siut; Erment; Luksor; Aswân. — **O.** Little Oasis.

Local name: raʾrâʾ.

Also known from Kordofan, Arabia Petraea, Scind to India.

1346. (3.) **Gnaphalium crispatulum** Del. Illustr. Flor. d'Eg. (1813), p. 123 tab. 44 fig. 3. — Boiss. Flor. Or. III, p. 225. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 538. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Diffuse or somewhat prostrate annual, lanate-canescent all over; branches numerous, somewhat elongate, flexuose slender, 5—6 cm long. Leaves narrow-spathulate, more or less acute, somewhat undulate, attenuate at the base into the short petiole, 6—8 mm long. Capitula campanulate 2—2,5 mm long, crowded in subglobose leafy or involucrate terminal clusters, about 0,75 cm diameter. Scales of the involucre mostly triseriate lanate, oblong, subacute, membranous; inner ones twice as long than the outer ones, glabrous; the outer ones elliptic-linear, whitish, much longer than the flowers; achenes smooth. — Flow. March to April.

N. d. Desûq; Tanta; Shirbîn; Mansura; Zifta; Benha-el-ʿAsal; Belbês; Cairo. — **N. v.** Helwân; Beni-Suêf; Ekhmîm; Girga; Farshût; Thebes; Karnak; Luksor; Erment; Aswân.

Only known from Egypt.

1347. (4.) **Gnaphalium indicum** L. Spec. Plant. I (1753), p. 1200. — Boiss. Flor. Or. III, p. 225. — DC. Prodrom. VI, p. 231. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 539. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Gnaphalium niliacum Raddi in Spreng. System. Plant. III, p. 480. — Gnaphalium spathulatum Del. Illustr. Flor. d'Eg., p. 122 tab. 44 fig. 2 not of Lam. — Diffuse annual 9 to 20 cm high, branched at the base, thinly cottony in most parts;

branches rather numerous, spreading, decumbent or ascending. Leaves spathulate or obovate, rounded or obtuse, mucronulate attenuate at the base into the short petiole, lanate especially on the margins and beneath, sometimes glabrate above, 1,5—2 cm long. Capitula campanulate, 3 mm long, sessile in small dense terminal and subterminal shortly spiciform sessile clusters. Scales of the involucre 2—3-seriate; inner ones oval-oblong, subacute, nearly glabrous; outer ones lanate, shorter, margins scarious, midrib green not reaching the apex. Bisexual flowers 4—5. Female florets very numerous. Achenes oblong, slightly compressed, papillose-glandular, otherwise glabrous. — Flow. March to April.

N. d. N. v. Often a common plant in sandy and waste places. *Local name:* ra'râ'.

Also known from Tropical Africa to Punjab and China, Japan and Australia.

558. (18.) **Helichrysum** Gaertn.

Involucre from broadly hemispherical to narrow-ovoid or cylindrical, the bracts imbricate in several rows, either entirely or their laminae rigidly or opaquely scarious or petal-like, more or less spreading or rarely appressed. Receptacle flat, convex or almost conical, without scales (or very rarely a few in the centre amongst sterile florets). Flowers either all hermaphrodite, tubular, and 5 rarely 4-toothed, or a few in the circumference (very rarely 1 or 2 outer rows) female, slender but not longer than the others, 2 or 3-toothed, a few of the central ones sometimes sterile. Anthers with fine tails. Style-branches nearly terete, truncate or rarely with small conical tips. Achenes angular, terete or slightly compressed, not contracted at the top, glabrous papillose or rarely silky-villous. Pappus of capillary bristles simple or more or less barbellate or plumose at the end, not distinctly plumose from the base, those of the female flowers often fewer or rarely wanting. — Herbs undershrubs or shrubs, with leafy stems, usually more or less clothed with cottony wool. Leaves alternate or the lower ones very rarely opposite, entire. Flowers yellow, the laminae of the involucral bracts usually white, yellow, brown or pink, often varying in all these colours with intermediate shades in the same species.

A large genus represented in most warm and temperate regions of the globe, especially numerous in S. Africa and Australia.

A. Involucral-scales erect, little or no longer-than the flowers . . . . . 1. **H. conglobatum.**

B. Intermediate involucral-scales longer than the flowers . . . . . 2. **H. Billardieri.**

1348. (1.) **Helichrysum conglobatum** (Viv.) Steud. Nomencl. Bot. I (1840), p. 738. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 161. — Gnaphalium conglobatum Viv. Flor. Libyc., p. 54 tab. III fig. 5. — Gnaphalium Stoechas Viv. Flor. Libyc., p. 55. — Helichrysum siculum Boiss. rar. brachyphyllum Boiss. Flor. Or. III, p. 230. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 540. — Sickenberg. Contrib. Flor. d'Eg., p. 245. — Helichrysum Fontanesii Coss. Bull. Soc. Bot. Franc. XII, p. 278 not of Camb. — A perennial herb, 20—40 cm high, or sometimes somewhat more, many-stemmed; stems slender, simple, erect or decumbent, leafy. Leaves linear, revolute-margined. Corymbs terminal; heads few, 4 mm long, scales of the incolucre few, lemon-yellow, glossy, thin, obtuse, ovate, glabrous at the base, the inner-ones linear-spathulate, tomentellous at the back. — Flow. March to April.

M. ma. Marmarica: Matruqa; between Esbet-el-Berberi and Bîr Khreir; Mariut: Behig; Alexandria-West and -East.

Local name: bezâz-el-ʾadhrâ (Muschler).

Also known from Arabia Petraea, Palestine and Syria.

1349. (2.) **Helichrysum Billardieri** Boiss. and B. Diagnos. Plant. Orient., Ser. II fasc. V (1853), p. 111. — Flor. Or. III, p. 239. — Helichrysum virgineum DC. Prodrom. VI, p. 177. — A perennial plant, 10—30 cm high, or sometimes somewhat more, appressed-woolly-canescent; rootstock woody; stems erect, leafy, 2—6-headed. Lower leaves obovate to spathulate, obtuse, tapering at the base, those of stem small, oblong-linear, acutish. Heads sessile or pedicelled, snow white or pinkish, 1,5 cm broad; scales of the involucre loose, obtuse, glossy, the outer ones oblong-elliptical, the inner ones linear-spathulate, tapering to a short, glabrous claw, all spreading wide open in fruit. — Flow. February to April.

M. p. Rosetta, rare (Muschler).

Also known from Syria, recently introduced?

559. (19.) **Leyssera** Linn.

Capitula heterogamous, radiate; flowers all or mostly fertile; those of the ray female, in one row, those of the disk hermaphrodite. Involucre turbinate-campanulate; bracts in several rows, imbricated, dry; the outer ones successively shorter. Receptacle flat, naked or nearly so in our species. Corolla of the ray-florets narrowly ligulate, of the disk-florets narrowly tubular, regular, shortly 5-cleft. Anther-base sagittate; auricles minute, very narrowly tailed. Style-branches narrow obtuse. Achenes narrow, angular. Pappus consisting of

short palae connate at the base and of a few long outer plumose setae. — Rigid or slender herbs or undershrubs with narrow entire crowded leaves and yellow flowers.

A small genus, all South African, except the following.

1350. **Leyssera capillifolia** (Willd.) DC. Prodrom. VI (1837), p. 279. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 541. — Leyssera discoidea Cass. in Dict. Scienc. Natur. XXVI (1823), p. 79. — Longchampsia capillifolia Willd. in Ges. Naturf. Freunde Mag. V, p. 160 (1811). — Fresen. Mus. Senckenberg II, p. 88. — A slender somewhat glandular-scabrid shining annual, branched from the crown of the root, 6—9 cm high. Leaves narrowly linear or filiform, ranging up to 2 cm long. Capitula 8—12 mm long, solitary, on slender divaricate subterminal peduncles of 2—5 $^1/_2$ cm long. Involucral bracts obtuse, linear or the outer ones oblong or oval, the inner ones with scarious tips. Ligule of the ray-florets very small. Setae of the outer pappus plumose towards the apex. — Flow. March to April.

D. a. sept. Suez; Atfih.

Also known from Spain and the other parts of the Sahara region to Western Asia.

560. (20.) **Inula** Linn.

Capitula heterogamous usually yellow and radiate; flowers of the ray female, 1-multiseriate. Involucral bracts multiseriate, imbricate; receptacle plane or slightly convex, areolate or foveolate. Corolla of the female flower 2—3-dentate, sometimes minute; of the hermaphrodite flower tubular 5-toothed. Anther-base sagittate with long tails. Achenes subterete, 4—6-ribbed or with the intermediate ribs equally distinct. Pappus 1-pluriseriate, setae few or copious, unequal. — Herbaceous or frutescent with alternate, simple, entire or serrate, more or less scabrid pubescent or tomentose leaves. Capitula usually in terminal corymbose cymes; occasionally on short lateral branches.

A large genus especially of temperate countries of the Old World.

A. Achenes nearly cylindrical, ribbed, not tapering at the tip; pappus free . . . . . 1. **I. crithmoides.**

B. Achenes oblong, tapering into a short neck. Bristles of the pappus united at the base into a short cup 2. **I. viscosa.**

1351. (1.) **Inula crithmoides** L. Spec. Plant. I (1753), p. 1240. — Boiss. Flor. Or. III, p. 195. — Rchbch. Ic. XVI, tab. 41 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 518. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Aschers.-Schweinf. Primit. Flor.

Marmaric., p. 652 no. 158. — Icon. Engl. Bot., tab. 68. — A perennial plant, 30—40 cm high or sometimes somewhat more, woody at the base, glabrous, corymbose to monocephalous. Leaves fleshy, green, linear-spathulate, obtuse, the lower frequently 3-toothed toward tip, those of the axils clustered. Peduncles long, beset with linear bracts; heads 3 cm broad; scales of the involucre linear-lanceolate, acuminate, the outer ones somewhat shorter; rays about twice as long as the involucre. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; along the sandy coast; Mariut; Montaza; Alexandria-West and -East. — **M. p.** Rosetta. — **O.** Little Oasis (according Caillaud).

Local name: zarâta (Caillaud); hatab zeyty (Schweinfurth).

Also known from the other parts of the Mediterranean region.

1352. (2.) **Inula viscosa** Ait. Hort. Kew. III (1811), p. 223. — Boiss. Flor. Or. III, p. 198. — Rchbch. Ic. XVI, tab. 44 fig. II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 519. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Erigeron viscosum L. Spec. Plant. I, p. 1209. — Cupularia viscosa Gren. and Godr. Flor. Franc. II, p. 181. — Solidago viscosa Lam. Flor. Franc. II, p. 144. — Jasonia glutinosa DC. Prodrom. VII, p. 285. — A perennial plant, 50 cm to 1 m or more high, woody at the base, glandular-hairy; stems rigid, paniculate. Leaves lanceolate to linear-lanceolate, sessile, remotely denticulate. Heads 8 mm long, peduncled, in a leafy panicle; scales of the involucre puberulent, the outher ones short, oblong, obtuse, the inner ones linear; rays few, scarcely once and a half as long as the involucre. — Flow. March to April.

M. p. Port Said (?). — **N. d.** Alexandria, borders of the Mareotis, common.

Local name: 'urq-et-tayyûn.

Also known from all the other parts of the Mediterranean region.

561. (21.) **Varthemia** DC.

Heads discoid, obconical. Flowers tubular, all perfect 5-toothed. Scales of the involucre few, truncate. Receptacle honey-combed. Anthers caudate at the base, appendages frequently ragged. Achenes somewhat compressed. Bristles of the pappus numerous, scabrous, nearly in one row, twice as long as the achenes. — Shrubby, branching, unarmed plants, distinguished from the nearly allied genus *Inula* by somewhat flattened achenes.

A small genus widely distributed in the Mediterranean region and the Orient.

A. Leaves ovate-oblong . . . . . 1. **V. montana.**

B. Leaves linear-spathulate . . . . . 2. **V. candicans.**

1353. (1.) **Varthemia montana** (Vahl). — Boiss. Flor. Or. III (1875), p. 212. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 526. — Chrysocoma montana Vahl Symb. Bot. I, p. 70. — Linosyris montana DC. Prodrom. V, p. 352. — Inula conyzoides DC. Prodrom. VII, p. 283. — Varthemia conyzoides Boiss. Diagnos. Plant. Or., Ser. II fasc. III, p. 10. — A perennial plant, 40—50 cm high, or sometimes somewhat more, woolly with yellow glands interspersed; stems wand-like, branching from the middle, branches rigid, short, 1—3-headed. Leaves ovate-oblong, half-clasping, the lower 2,5 cm long, 1 cm broad, those of the branches and peduncles small, scale-like, spreading; outer scales of the involucre somewhat glutinous, oblong, spreading-recurved at the tip, inner longer, linear. — Flow. March to April.

D. a. sept. Wady Rishrâsh, in the both Galala.

Local name: haneydey (Schimper).

Also known from Palestine and Syria.

1354. (2.) **Varthemia candicans** Boiss. Flor. Or. III (1875), p. 212. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 527. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 59 — Chrysocoma candicans Del. Illustr. Flor. d'Eg., p. 358 tab. 46 fig. 2. — Warthemia libyca Sch. Bip. in Schweinf. Beitr. Flor. Aethiop., p. 287 no. 2677. — A perennial plant, 50 to 60 cm high or sometimes somewhat more, valvety-pubescent; branches erect or diffuse, leafy. Leaves linear-spathulate, obtuse, revolute-margined the lower ones 2,5—3 cm long, 2—3 mm broad, the upper ones smaller. Heads 3—5 at the end of the branches; scales of the involucre few, erect, obtuse, the outer ones herbaceous, oblong, the inner ones linear. — Flow. March to May.

M. ma. Marmarica: Matruqa; Bîr-el-Qasaba; Mariut; Montaza; Alexandria-West and -East.

Local name: saa'tar-el-homar (Ehrenberg).

Also known from Tripolitania and Arabia Petraea.

562. (22.) **Iphiona** Cass.

Capitula homogamous, discoid, the flowers usually all tubular and hermaphrodite. Involucre campanulate or ovoid, bracts multiseriate, imbricate, dry more or less scarious; receptacle narrow naked. Anther-base sagittate with slender tails. Achenes subterete (hirsute in the following) 8—10-costate. Pappus 1—∞-seriate, setae copious. — Branching more or less glabrous or scabrid shrubs,

with alternate entire or toothed leaves and yellowish white capitula, either solitary or cymose.

A small genus, chiefly Mediterranean and Mascarene.

A. Glabrous plants . . . . . 1. **I. mucronata.**
B. Glandular-scabrous plants . . . . . 2. **I. scabra.**

1355. (1.) **Iphiona mucronata** (Forsk.) Aschers.-Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 86 no. 524. — Chrysocoma mucronata Forsk. Flor. aeg.-arab., p. 147. — Iphiona juniperifolia Cass. in Dict. Scienc. Natur. XXIII, p. 610. — Boiss. Flor. Or. III, p. 210. — Staehelina spinosa Vahl Symb. Bot. I, p. 69. — Chrysocoma spinosa Del. Illustr. Fl. d'Eg., p. 128 tab. 46. — Conyza pungens Lam. Dict. II, p. 86. — A shrubby plant, glabrous, 30—50 cm high, or sometimes somewhat more, branches intricate, forked corymbose above, numerous. Leaves linear, pinnatipartite to the base into 2—6, prickly lobes. Capitula campanulate, 1—2,5 cm long, about 12-flowered, solitary, axillary, and terminal, often crowded, on pedicels ranging up to 2 cm long. Outer scales of the involucre ovate, obtuse, abruptly mucronate, the inner ones lanceolate. Receptacle 0,3 mm wide, naked. Achenes oblong, 1 mm long, hirsute. Pappus tawny, multiseriate, unequal, subscabrid. — Flow. March to April.

D. a. sept. Often in the Wadies, especially in shady places.

Local name: dafrâ; dafry.

Also known from Arabia Petraea, Palestine and Syria.

1356. (2.) **Iphiona scabra** DC. Prodrom. VI (1837), p. 475. — Boiss. Flor. Or. III, p. 210. — DC. in Ann. Scienc. Natur. (1834), p. 263. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 525. — Shrubby, scattered with short glandular scabrous pubescence; branches ascending, numerous. Leaves subulate-pungent, sessile, 1—2 cm long, with 1—3 spines about 4 mm long at the base on each side. Capitula campanulate, 1 cm long, about 14-flowered, solitary, axillary and terminal, often crowded, on pedicels ranging up to 2 cm long. Scales of the involucre 3—4-seriate, puberulous; inner linear, acute; outer shorter less acute or subobtuse; outermost acute. Receptacle 2 mm wide, naked. Achenes oblong. $^1/_{10}$ in. long, hirsute. Pappus tawny, multiseriate, unequal, subscabrid. — Flow. March to April.

D. a. sept. Suez. — **D. a. mer.** Qoseyr.

Also known from Tropical Africa, Arabia, Palestine and Syria.

563. (23.) **Pulicaria** Gaertn.

Capitula heterogamous, radiate or discoid, outer flowers ♀. Involucre hemispherical; bracts narrow acute pauciseriate, outer more or

less herbaceous usually shorter. Receptacle foveolate or punctate. Ray-flowers ligulate or limb of corolla minute. Anther-base sagittate finely tailed. Achenes subterete or ribbed. Pappus more or less distinctly double, outer usually minute cupuliform dentate, inner setaceous. — Herbs usually hairy or puberulous with alternate sessile often amplexicaul entire or toothed leaves and solitary or cymosely panicled yellow capitula.

A considerable Old World genus of the Tropics and Northern temperate zone.

A. Pappus biseriate.
  I. Leaves mucronate, denticulate, flat.
    a) Setae of the pappus 10 . . . . . 1. **P. arabica.**
    b) Setae of the pappus 18—25 . . . . . 2. **P. sicula.**
  II. Leaves obtuse, not mucronate, dentate, often undulated.
    a) Setae of the pappus 15 . . . . . 3. **P. undulata.**
    b) Setae of the pappus 10 . . . . . 4. **P. inuloides.**
B. Pappus uniseriate . . . . . 5. **P. crispa.**

1357. (1.) **Pulicaria arabica** Cass. in Dict. Scienc. Natur. XLIV (1825), p. 94. — Boiss. Flor. Or. III, p. 205. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 522. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Inula arabica L. Mant., p. 114. — Pulicaria trichocephala DC. Prodrom. V, p. 478. — Pulicaria vulgaris Gaertn. — De fructib. II, p. 461. — DC. Prodrom. V, p. 478. — Herbaceous, erect, much branched at least above, more than 30 cm high, puberulous; branches subterete, striate. Leaves linear-oblong, subobtuse or subacute, mucronate, sessile, cordate semiamplexicaul, entire or obsoletely denticulate, 1—5½ cm long by 5—12 mm wide. Capitula hemispherical, many-flowered, 0,75—10 mm diameter, solitary or subsolitary, on pedicels 1—5 cm long, terminal and subterminal, radiate. Scales of the involucre pauciseriate, glandular-pubescent, linear acute apiculate; outer rather shorter. Receptacle plane convex, areolate, naked, 4—6 mm diameter. Ligule of ray tridentate, 0,5—0,75 mm broad. Achenes oblong, setulose. Outer pappus cup-shaped, dendate, inner of about 10—12 setae, barbellate towards the tip. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. l. D. i. D. a. sept. A common plant in sandy and stony localities.

Local name: raʾrâʾayûb (Forsk.; Schweinfurth); zaghlîl; abûʾain-safrâ (G. Roth).

Widely dispersed in Europe, the Sahara region, Asia to Persia.

1358. (2.) **Pulicaria sicula** Moris Flor. Sard. II (1840—1843), p. 363. — Boiss. Flor. Or. III, p. 205. — Rchbch. Ic. XVI tab. 43

fig. 1. — Erigeron siculum L. Spec. Plant. I, p. 1210. — Jasonia sicula DC. ap. Decaisn. Flor. Sinaic., p. 23. — An annual herbaceous erect plant, scabrid-hirsute, mostly branching from the base or from the middle. Lower leaves oblong-lanceolate, somewhat toothed, narrowed at the base, hirtulous; the cauline ones numerous narrowly and shortly linear often convolute at the margin, auricled-semiamplexicaul. Capitula small, 1—2 cm long, terminal, solitary or nearly so on pedicels with bracts. Scales of the involucre herbaceous; the outer ones linear, acute; the inner ones acuminate, longer, scarious on the margin. Receptacle plane-convex, areolate, naked, 4—5 mm diameter. Ligules as long as the involucral-scales. — Achenes oblong, setulose. Pappus of 18—25 setae, twice as long as the achenes, barbellate toward the tips. — Flow. March to April.

N. d. Merabe' în (Maire).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, France, Italy and Greece.

1359. (3.) **Pulicaria undulata** DC. Prodrom. V (1836), p. 479. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 521. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Boiss. Flor. Or. III, p. 202. — Pulicaria incisa DC. Prodrom. V, p. 479. — Pulicaria orientalis Jaub. and Spach Illustr. Plant. Or. IV, p. 65 tab. 342 (only a form with outer involucral scales somewhat spathulate and obtuse). — Pulicaria aromatica Br. in Salt, Abyss. App., p. XV (name only). — Erect much branched annual or biennial 15—60 cm high, more or less hoary-lanuginous or occasionally pubescent; branches terete striate. Leaves oblanceolate or oblong or uppermost linear, obtuse or uppermost subacute, dentate, often undulate, auriculate-amplexicaul, 1 to 5 cm long, by 3—6 mm wide. Capitula subhemispherical, 5—8 mm diameter, many-flowered, solitary, terminal and subterminal, radiate, on peduncles 5 mm to $2^1/_2$ cm long. Scales of the involucre sub-4-seriate, glandular-puberulous, linear, acute, subappressed; outer shorter, sometimes spathulate and subobtuse. Receptacle areolate, 5—8 mm diameter. Achenes obovoid-oblong, setulose, terete, obscurely ribbed. Pappus biseriate; outer cup-shaped, dentate; inner of about 14—15 scabrid setae, rather dilated and notched at the tip. — Flow. February to March.

D. l. D. i. D. a. sept. D. a. mer. A common plant in sandy and calcanous places.

Local name: ghobeyrâ (Del.); kutkât (Schweinfurth); generally; rabbûl.

Also known from Arabia Petraea, Palestine and Syria.

1360. (4.) **Pulicaria inuloides** DC. Prodrom. V (1836), p. 480. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 520. — Pulicaria longifolia Boiss. Flor. Or. III, p. 202. — A perennial plant, 30 to 60 cm high or sometimes somewhat more, viscid, hirtulous, with short hairs tubercled at the base; stems panicled or corymbosed above. Leaves 6—8 cm long, nearly entire the lower ones linear-oblong, with long tapering base, the upper ones linear, half-clasping, minutely auricled. Heads 1 cm broad, long-peduncled; scales of the involucre hirsute, linear, ocuminate; rays 3-toothed, not longer than the involucre; brustles of the pappus about ten, twice as long as the achenes. — Flow. March to April.

N. d. N. f. O. v. O. D. a. sept. In sandy and waste places a common plant.

Local name: damsîs; ra'râ (Ascherson).

Also known from Arabia Petraea, Palestine and Syria.

1361. (5.) **Pulicaria crispa** Benth. and Hook. Gen. Plant. II (1873), p. 336. — Francoueria crispa Cass. in Dict. Scienc. Natur. XXXIV (1825), p. 44. — DC. Prodrom. V, p. 475. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 86 no. 523. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 760. — Boiss. Flor. Or. III, p. 206. — Aster crispus Forsk. Flor. aeg.-arab., p. 150. — Inula crispa Pers. Syn. II, p. 450. — Del. Illustr. Flor. d'Eg. tab. 45 fig. 2. — Herbaceous, 30—70 cm or sometimes somewhat more, more or less whitish-tomentose or occasionally somewhat glabrous, much branched; branches terete, striate, often obscurely so. Leaves auriculate-amplexicaul, sessile denticulate-crisped; lovers ones obovate-oblong, narrowed below the middle, rounded or obtuse at the apex; 1—2,5 cm long, 4—6 mm broad, the uppermost ones small linear or lanceolate subacute or subobtuse. Capitula hemispherical, 8—12 mm diameter many-flowered, solitary at the ends of the paniculate branches, radiate. Scales of the involucre pluriseriate, thinly woolly or glandular, linear, acute; outer shorter, recurved at the tips. Disk flower 4—5-dentate. Receptacle punctate, 5—8 mm diameter. Achenes glabrous. Pappus sub-1-seriate with a few shorter setae, subplumosely scabrid above. — Flow. February to April.

M. m. a. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. Everywhere a common plant.

Local name: sabat (Forsk.); tagâr; khaûf (Schweinfurth); ra'râ (G. Roth); generally; kutkât; afrash; dithdâth (Schweinfurth); gidiai (Klunzinger).

Also known from the other parts of the Sahara region to Babylonia.

564. (24.) **Anvillea** DC.

Heads many-flowered, discoid; flowers all tubular, perfect. Involucre at length woody, outer scales leaf-like, at tip, inner in 2 rows, appressed, spinescent. Receptacle chaffy. Anthers caudate at base. Achenes uniform, 4-sided, bald and umbilicate at tip. — Rigid, branching, desert shrubs.

A small genus in the Mediterranean region.

1362. **Anvillea Garcini** (Burm.) DC. Prodrom. V (1836), p. 487. — Boiss. Flor. Or. III, p. 181. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 517. — Buphthalmum Garcini Burm. Flor. Ind. tab. 60 fig. I. — Buphthalmum arabicum Del. Fragment, p. 14 tab. 4. — Buphthalmum flosculosum Vent. Cels. tab. XXV. — A perennial or shrubby plant, 15—45 cm high or sometimes somewhat more. Appressed-canescent, branching from base. Leaves obovate-spathulate to oblong-linear, tapering at base, repand or fringed-toothed. Peduncles short and thick; outer scales of the involucre spathulate at the tip, more or less reflexed, inner rather longer than involucre; pales of receptacle truncate at tip, abrubtly bristly-cuspidate. Flow. March to April.

D. l. Between Alexandria and the Oasis Siwa, in deep sand.

Also known from Arabia Petraea, Palestine and Syria.

565. (25.) **Pallenis** Cass.

Heads many-flowered, radiate. Involucre imbricated, outer scales spiny-tipped. Receptacle chaffy. Ray-flowers in 2 rows, strap-shaped, 3-toothed, tube triquetrous, winged; disk-flowers winged on inner side, dilated at the base. Anthers caudate. Achenes hirsute, those of ray-flowerets flattened, 2-winged, triquetrous, those of disk flattened, triqetrous. Pappus short, crown-like, toothed. — Herbs with aspect of Odontospermum.

A small genus in the Orient.

1363. **Pallenis spinosa** (L.) Cass. in Dict. Scienc. Natur. XXXII (1825), p. 275. — Boiss. Flor. Or. III, p. 180. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 516. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 157. — Buphthalmum spinosum L. Spec. Plant. I, p. 1274. — Icon. Sibth. and Smith Flor. graec. tab. 898. — An annual herb, 50 cm to 1 m high or rarely somewhat more, hirsute or villous. Lower leaves oblong-spathulate, tapering into a petiole, upper lanceolate, sessile. Outer scales of the involuce linear-lanceolate, with prominent nerves,

rigid, much longer than the rays, inner ovate, cuspidate, as long as the ray-flowers. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr.

Also known from the other parts of the Mediterranean region.

566. (26.) **Odontospermum** Neck.

Capitula heterogamous radiate hemispherical or broadly campanulate; ray-florets female, in 1 or 2 rows; disk-flowers bisexual, fertile. Involucral bracts pauciseriate, ovate or linear, unequal; the inner ones dry; the outer herbaceous or foliaceous. Receptacle slightly convex, furnished with oblong paleae nearly as long as the florets, the outer paleae subtending the florets, the inner semi-cylindrical, embracing the florets. Ligules 2—3-dentate. Corolla of the disk-florets tubular, acutely 5-lobed. Anthers sagittate at the base, appendaged with long linear auricles. Style branches somewhat compressed, rounded and rather dilated at the apex. Achenes costate; those of the ray somewhat compressed or trigonous; those of the disk subterete. Paleae of the pappus numerous, distinct, scarious, cut towards the apex, equalling the ovary. — Tough herbs or undershrubs, with alternate toothed or entire leaves and solitary heads terminating the lateral and terminal branches.

A genus of about 8 species ranging from the Levant to the Cape de Verde Islands.

A. Heads sessile; stemless plant . . . . . 1. **O. pygmaeum.**
B. Heads peduncled; 30—50 cm high stems . . . . 2. **O. graveolens.**

1364. (1.) **Odontospermum pygmaeum** Benth. and Hook. Gen. Plant. II (1873), p. 340. — Hook. Icon. XXVI, tab. 2583. — Asteriscus pygmaeus Coss. and Dur. in Plant. Alg. exsicc., no. 793. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 514. — Boiss. Flor. Or. III, p. 179. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 156. — Aschers. Flor. Rhinocol., p. 798 no. 135. — Asteriscus aquatocus var. pygmaeus DC. — Prodrom. VII, p. 287. — Saulcya hierochuntica Mich. Voy. relig. Or. II, p. 383. — An annual plant. Dwarf, grey-villulose, almost stemless, simple or branching. Leaves oblong, obtuse, all tapering into a long petiole. Heads sessile, overtopped by the upper leaves; outer scales of the involucre linear-lanceolate, much longer than the rays, inner ones oblong-obtuse; rays very short; achenes silky; pappus subulate-tipped, scarcely toothed. — Flow. December to April.

M. ma. Marmarica: Matruqa; Dakalla; Mariut. — **M. p.** El-Grady. — **D. i.** Wady-el-Hagg. — **D. a. sept.** Common in the desert.

Local name: noqud.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea and Palestine.

1365. (2.) **Odontospermum graveolens** Sch. Bip. in Webb. and Berth. Phys. Canar. II (1836—47), p. 232. — Asteriscus graveolens DC. Prodrom. V, p. 486. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 85 no. 515. — Boiss. Flor. Or. III, p. 179. — Sickenberg. Contrib. Flor. d'Eg., p. 244. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 652 no. 157. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem., p. 760. — Aschers. Flor. Rhinocol., p. 798 no. 136. — Buphtalmum graveolens Forsk. Flor. aeg.-arab., p. 151. — Shrubby, much-branched, ranging up to 70 cm high. Branches rigid, whitish, obsoletely velvety. Leaves pinnately lobed or remotely toothed, often mucronate, sessile, more or less narrowed above the cordate-amplexicaul base, hoary, viscid or shortly hairy, ranging up to 5 cm long. Capitula hemispherical, terminal and subsessile in the forks of the lateral branches, 8 to 12 mm diameter, usually involucrate with 1—3 floral leaves at the base. Involucral bracts ovate, puberulous; the outermost linear, mucronate or apiculate, foliaceous. Flowers yellow; ligule acutely toothed at the apex, shortly exceeding the disk. Achenes hairy on the ribs. — Flow. March to April.

M. p. el-Grady; el-ʿArîsh. — **D. i.** Wady-el-ʿArîsh. — **D. a. sept.** Common in all the Wadies.

Local name: rabd (Forsk.); nuqd; beheymey (Schweinfurth); nuqqeyd (Ascherson).

Also known from Algeria, Tripolitania and Arabia Petraea.

567. (27.) **Ambrosia** Linn.

Capitula unisexual; of male flowers small spicate or racemose, many-flowered, with a broadly hemispherical gamophyllous shortly lobed herbaceous involucre; receptacle nearly plane, with or nearly without filiform paleae; female capitula sessile or clustered in the upper axils, 1-flowered, apetalous. ♂ corolla white, regular, 5-fid; anthers free or nearly so, base entire. ♀ involucre ovoid or subglose, closed over the achene, usually with 4—6 tubercles or short spines, narrowed above into a short beak. — Herbs or frutescent, more or less hairy with alternate (or opposite) bipinnately divided leaves.

A small widely diffused genus of warm countries.

1366. **Ambrosia maritima** L. Spec. Plant. ed. I (1753), p. 988. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 553. — Aschers. Flor. Rhinocol., p. 798 no. 142. — Boiss. Flor. Or. III, p. 252. — Ambrosia senegalensis DC. Prodrom. V, p. 523. — A coarse annual, woody below, 30—90 cm high, whole plant usually very hairy and hoary, much-branched. Leaves ovate, bipinnatipartite, 2—6 cm long; segments obtuse, sometimes toothed. Capitula subsessile, 3—5 mm diameter, 15—20-flowered, in dense spikes, male at the top and often female below, arranged in a pyramidal or corymbose terminal panicle, leafy at least below. Male involucres crenate, shortly hemispherical, hispid with up-curved scattered hairs; fruiting involucre somewat turbinate and angular, with 4—5 horns at the top. — Flow. March to April.

M. ma. Abusîr; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta. — **N. d. N. v.** Often on way-sides and in waste places. — **O.** Dakhel.

Local name: na'na' (Ascherson); ghobeyrâ (Roth); damassena; demssissa; tenûm; generally: demsîs.

Widely spread throughout the Mediterranean region.

568. (28.) **Xanthium** Linn.

Capitula unisexual, monoecious; staminate globose in terminal clusters; pistillate 2-flowered, chiefly axillary. Male capitula with few narrow involucral bracts; flowers numerous, sheathed by folded hyaline paleae; corolla 5-toothed; anthers free or nearly so, base obtuse. Female capitula with an ellipsoidal or ovoid closed gamophyllous aculeate involucre, 2-locellate and 2-rostrate; corolla 0; achenes solitary in each cell of the indurated prickly enclosing involucre. — Coarse scabrid hoary or glabrate annuals, with alternate petiolate palmately lobed leaves.

A small weedy genus widely spread in warm countries.

A. Unarmed plants . . . . . 1. **X. strumarium.**
B. Plants with spines at the base of the leaves . . 2. **X. spinosum.**

1367. (1.) **Xanthium strumarium** L. Spec. Plant. I, (1753), p. 987. — Xanthium strumarium var. antiquorum Boiss. Flor. Or. III, p. 252. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 551. — Aschers. Flow. Rhinocol., p. 798 no. 141. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — Xanthium antiquorum Walbr. Beitr. Bot. II, p. 279. — Xanthium abyssinicum Walbr. Beitr. Bot. II, p. 230. — Xanthium brevirostre Hochst. in Herb. Schimp. Abyss. III, no. 1958. — Stem branches and leaves

puberulous, without spines, altogether 30—60 cm. high. Leaves deltoid, 3—5-lobate, unequally often coarsely dentate, 1—6 in. broad, base 3-nerved, cordate, sinus wide, cuneate into the petiole of 1 to 9 cm. Capitula nearly sessile, clustered; fruit ellipsoidal, about 1 cm long, terminating in an erect or somewhat curved beak. — Flow. March to April.

M. p. Rosetta; Damietta; El-Grady. — **N. d. N. v.** Often common on way-sides and in waste places. — **O.** Little Oasis.

Local name: kharaq-el-bahr (Forsk., Del.); shubbey (Ascherson).

A variable plant, widely diffused especially in the warmer regions of the northern hemisphere.

1368. (2.) **Xanthium spinosum** L. Spec. Plant. I (1753), p. 1400. — Boiss. Flor. Or. III, p. 252. — Ic Morison, tab. XV fig. 3. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 552. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — An annual plant 60 cm to 1 m high, or sometimes somewhat more. Spines at the base of the leaves, tripartite, yellow, 1—3 cm long; leaves canescent at the lower surface, green except along the nerves at the upper one, short-petioled, wedge-shaped at the base, oblong-lanceolate, undivided or 3-lobed, the middle lobe much longer. Staminate heads terminal, pistillate involucres usually solitary in axils, nodding. — Flow. March to April.

M. ma. Alexandria-West. — **N. d.** Between Abu Hammas and the desert (Maire).

Local name: badhinjân-teriâqi.

Also known from Southern Europe and Arabia Petraea to Syria.

569. (29.) **Zinnia** Linn.

Heads many-flowered; the ray flowers pistillate: those of the disk perfect, tubular, with 5 velvety lobes. Scales of the involucre imbricated, oval or roundish, margined. Chaff of the conical receptacle clasping the disk flowers. Ray flowers oblong, rigid persistent. Achenes of the disk compressed, with a 1—2-awned pappus; of the rays 3-angled, destitute of a pappus. — Annual herbs, with sessile entire 3-ribbed leaves, and solitary heads, on long inflated peduncles.

A small genus, especially distributed in Mexico.

1369. **Zinnia pauciflora** L. Spec. Plant. ed II (1762), p. 1269. — Zinnia tenuiflora Jacq. Ic. Rar., tab. 590 (a form with narrow ligules). — Zinnia revoluta Cav. Icon. III, p. 251. — Zinnia leptopoda DC. Prodrom. V, p. 535. — Erect annual; leaves from lanceolate to

oblong-ovate, commonly with a subcordate base, scabrous; peduncle sometimes enlarging and hollow; involucre narrow-campanulate; ligules from obovate to narrowly spatulate, red, purple, or yellow; achenes of the disk 1-awned, sometimes with a rudiment of a second awn or tooth. — Flow. March.

M. ma. Ramle; recently introduced (Muschler).

A native of Mexico, and now widely dispersed also in North America.

570. (30.) **Eclipta.**

Capitula heterogamous, radiate. Involucre hemispherical of subbiseriate herbaceous nearly equal bracts equalling the head. Paleae of receptacle narrow, folded, or of centre of receptacle setiform or 0. Ligule of ray-flowers small, entire or bidentate. Anther-base entire or nearly so. Achenes somewhat angular, minutely tubercled; pappus 0 or shortly biaristate. — Herbs, usually strignose or hirsute, with opposite entire or toothed leaves and terminal or axillary pedunculate rather small solitary or geminate heads.

A small genus of warm regions.

1370. **Eclipta alba** Hassk. Plant. Jav. Rar. (1856), p. 528. — Boiss. Flor. Or. III, p. 249. — DC. Prodrom. V, p. 490. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 88 no. 547. — Verbesina alba L. Spec. Plant. I, p. 1272. — Cotula alba L. System. II, p. 564. — Eclipta erecta L. Mant., p. 286. — Eclipta prostrata L. Mant., p. 286. — Icon. Dill. Elth., tab. 137. — An erect or decumbent scabrid herb, 30—60 cm high; branches striate or sulcate. Leaves lanceolate or narrowly elliptical, narrowed at both ends, more or less scabrid-punctate, very shortly petiolate, ranging up to 9 by 2 cm. Peduncles 1—3 together, unequal, slender, ranging up to $5^1/_2$ cm, suberect. Capitula 5—10 mm diameter, hemispherical. Bracts of the involucre ovate, acuminate, strigose-pubescent. Ray-florets small, white. Tubular florets 4-dentate at the apex. Achenes usually quite glabrous, minutely tubercled. — Flow. March to April.

M. ma. N. d. N. f. N. v. O. Little Oasis.

Local name: sa'de (Delile).

Also known from Tropical Africa.

571. (31.) **Verbesina** Linn.

Capitula hemispherical heterogamous radiate; ray-flowers female ligulate, ligule spreading, deeply toothed, yellow. Involucral bracts 1—2-seriate, herbaceous, linear, acute, often unequal, equalling the disk; paleae of receptacle conduplicate sheathing the flowers. Anther-

base obtuse. Achenes compressed with winged margins; pappus of 2 aristae. — Herbs more or less hoary with opposite and alternate leaves and rather large loosely cymose pedunculate heads. — Ximenesia Cav.

A large American genus, with one species widely spread in the Tropics.

1371. **Verbesina encelioides** (Cav.) Benth. and Hook. Gen. Plant. II (1873), p. 380. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 549. — Pallasia serratifolia Sm. in Recs. Cycl. XXVI. — Ximenesia encelioides Cav. Icon. II, tab. 178. — More or less hoary branched annual, 30—90 cm high. Stem and branches pubescent-tomentose, striate. Leaves mostly alternate at least the upper ones, from deltoid to oblong, dentate, broad near the sometimes excavated base, green and strigulose above, hoary with whitish closely appressed tomentum below, $2^1/_2$—9 by 2—6 cm exclusive of the winged auriculate petiole of 4—5 cm. Capitula 1—$2^1/_4$ cm diameter, on peduncles ranging up to 10 cm. Outer bracts of the involucre linear acute herbaceous, about 1 cm long. Receptacle convex. Achenes pilose. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated in the gardens and often subspontaneous.

A variable widely spread species originally from Mexico.

572. (32.) **Helianthus** Linn.

Annual or perennial caulescent herbs. Leaves alternate or opposite; blades simple, entire or toothed. Heads conspicuous. Involucres flat, hemispheric; or cylindric; involucral-scales in several series, fleshy or leathery. Receptacle flat, convex or conic, chaffy. Ray-flowers neutral, ligules yellow. Disk-flowers bisexual, fruit-producing; corollas brownish or purple. Stigmas with pubescent appendages. Achenes flattened or somewhat or somewhat 4-angled. Pappus of 2 awns or scales, and these sometimes accompanied by 2—4 shorter ones, all early deciduous. The plants flower in summer and fall, unless otherwise stated.

A large genus widely distributed in America.

A. Plants annual; receptacle flat or nearly so.
  I. Stem branched at the base the branches weak, diffusely spreading or decumbent . . . . . 1. **H. debilis.**
  II. Stem rigid and essentially erect.
    a) Foliage pubescent with silky wool, sometimes floccose inage . . . . . 2. **H. argophyllus.**
    b) Foliage hispid, hirsute or scabrous . . . 3. **H. annuus.**
B. Plants perennial; receptacle convex or low-conie 4. **H. tuberosus.**

1372. (1.) **Helianthus debilis** Nutt. Trans. Am. Phil. Soc. VII (1841), p. 367. — Torr. and Gray Flor. II, p. 320. — Helianthus praecox Engelm. and Gray Plant. Lindh. I, p. 13. — An annual plant, more or less scabrous. Stems branched at the base, the branches decumbent or spreading, 30—90 cm long; leaves mostly alternate; blades deltoid or somewhat hastate to ovate-lanceolate, 4—8 cm long, acute or acuminate, repand or shallowly and broadly toothed, broadly cuneate to cordate at the base, the petioles glabrous or sparingly pubescent, bracts of the involucre lanceolate or linear-lanceolate, 8—10 mm long, acuminate, or subulate; ray-flowers several; ligules yellow, 1—1,5 cm long; disk 1,5—2 cm broad. — Flow. March to April.

M. ma. Naturalized in gardens in Alexandria and Ramle.

Widely distributed in America.

1373. (2.) **Helianthus argophyllus** Torr. and Gray Flor. II (1838), p. 318. — Rev. Hort. (1857), p. 431. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 89 no. 548. — An annual plant clothed with white, often somewhat floccose silky wool. Stems 50—1,20 cm long, branched; leaves alternate except some of the lower ones; blades various, those of the lower leaves very broad, those of the upper leaves ovate or lanceolate, 5—15 cm long, acute, undulate, or somewhat serrate, rounded or cordate at the base, petioled; bracts of the involucre oblong, ovate or fiddle-shaped, spreading, 1—1,5 cm long, acuminate, sometimes sharply so; ray-flowers several; ligules 2,5 to 3,5 cm long; disk 2—4 cm broad. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. i. Often cultivated and naturalized, especially at Ismailia.

Also known from Texas.

1374. (3.) **Helianthus annuus** L. Spec. Plant. I (1753), p. 904. — Lam. Illustr., p. 706. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 89. — Helianthus lenticularis Dougl. Bot. Reg., tab. 1225. — DC. Prodrom. V, p. 586. — Helianthus macrocarpus DC. Prodrom. V, p. 586 (a race of the garden Sunflower with larger and light-coloured achenes). — An annual plant, markedly pubescent. Stems hispid or hirsute, 1—2 m high or higher in cultivation, branched above; leaves mainly alternate; blades broadly ovate, 7—30 cm long, or smaller above, usually slightly acuminate at the apex, decidedly toothed, those of the lower leaves cordate at the base, those of the upper cuneate; ligules of the ray-flowers 2,5—5 cm long; disk flat, 3 to 5 cm broad. All the parts are often much larger in cultivated forms. — Flow. January to March.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated in gardens and often subspontaneous.

Local name: habb-esh-shems.

Origin of America.

1375. (4.) **Helianthus tuberosus** L. Spec. Plant. I (1753), p. 905. — Jacq. Hort. Vindob., tab. 161. — Helianthus doronicoides Torr. and Gray Flor. II, p. 327 not of Lam. — A perennial plant, pubescent; stems 60 cm to 3 m high, scabrous to hirsute, often branching above; leaves mostly alternate; blades thickish, ovate to lanceolate, 8—20 cm long, acuminate acuminate, more or less serrate, cuneate to subcordate at the base, commonly pubescent beneath, scabrous above, terminating petiole-likes bases; heads showy; involucral bracts rather foliaceous, linear to linear-lanceolate, 1,5 to 2,5 cm long, ciliate, long-attenuete, often pubescent on the back; ray-flowers numerous; ligules bright yellow, 2,5—4 cm long; disk yellow, 1,5—2 cm broad. — Flow. March to April.

N. d. Cairo, often cultivated in gardens and rarely subspontaneous.

Local name: truff; tartiff.

Also known from America.

573. (33.) **Coreopsis** Linn.

Capitula heterogamous radiate; ray-flowers 1-seriate, conspicuous, female or neuter. Involucre duplex; outer bracts more or less herbaceous, linear or linear-lanceolate, inner membranous, subequal, 1—2-seriate, broader than the outer; bracts sometimes appearing more or less connate at the base. Scales of receptacle plane or slightly concave, membranous, striate. Anther-base entire or bidentate. Style-branches truncate or with an abrupt subulate appendix. Achenes usually much compressed, linear oblong or obovate; margins sometimes winged (in the Egyptian species thickened), apex with 2 filiform subulate or broad-based aristae, usually barbellate with setae directed upwards. — Herbs or frutescent more or less, with opposite often pinnatisect or deeply divided simple leaves and pedunculate solitary or variously cymose yellow conspicuous heads.

A large genus of warm regions; species most numerous in the New World.

1376. **Coreopsis chrysantha** Vatke in Linnaea XXXIX (1875), p. 499. — Oliv. Flor. Trop. Afric. III, p. 388. — Coreopsis Rueppellii Sch. Bip. in Walp. Rep. VI, p. 163. — Verbesina Rueppellii A. Rich. Tentam. Flor. Abyss. I, p. 410. — Erect perennial pallid herb, 60 cm to 1,20 m high. Stems from a woody stock, striate, glabrous below. Leaves tripartite or not lobed; lobes lanceolate or linear, acutely

narrowed at both ends, shortly petiolate, quite entire near both ends, sharply or deeply serrate on other parts of the margin, scabrid above, shortly hispid-pubescent below, 1,5—3 1/2 by 4 mm to 1 cm; petioles ranging up to 2 1/4 cm. Capitula hemispherical, 5—12 mm long, on hispid peduncles of 2 1/3—9 cm in a lax open corymbose cyme. Outer involucral bracts linear, puberulous, rather falling short of the inner which are broader and more pubescent. Achenes oblong, 5 mm long, slightly hairy upwards, not winged, compressed. Aristae filiform, shorter than the achene, inconspicuously ciliate. — Flow. March to April.

N. v. Islands of the Nile near Aswân.

Also known from Nubia.

574. (34.) **Bidens** Linn.

Capitula heterogamous radiate; ray-flowers ligulate 1-seriate female or neuter, occasionally wanting and the capitula thus homogamous. Involucre sub-2-seriate, inserted around an often dilated receptacular disk, outer bracts often herbaceous, inner membranous. Scales of receptacle nearly plane or slightly concave. Anther-base entire or minutely sagittate. Style-branches with abrupt appendices. Achenes 4-angled or compressed, linear or oblong, often elongate and narrowed upwards, crowned with 2—4 retrorsely barbed aristae. — Herbs with opposite pinnati- or ternati-sect or undivided leaves and solitary or loosely cymose pedunculate yellow or white conspicuous capitula.

A large genus of warm and temperate regions in both hemispheres.

1377. **Bidens pilosus** L. Spec. Plant. I (1753), p. 832. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 550. — Sickenberg. Contrib. Flor. d'Eg., p. 226. — DC. Prodrom. V, p. 597. — Bidens leucantha Willd. Spec. Plant. III, p. 1719. — DC. Prodrom. V, p. 598. — Bidens abyssinica Sch. Bip. in Walp. Rep. VI, p. 167. — Bidens abortiva Schum. and Thonn. Plant. Guin., p. 381. — An erect annual, 9—100 cm high, glabrous or somewhat pilose. Stem and branches quadrangular. Leaves ovate, mostly pinnately lobed occasionally undivided, 2—16 cm long including the petiole, which ranges up to 5 1/2 cm membranous; lobes 1—5, opposite with a terminal one, ovate or lanceolate, acuminate, shortly stalked, serrate or incisely toothed, ranging up to 6 1/2 by 5 cm. Capitula hemispherical 5 mm to 1 cm diameter in flower, elongating and widening upwards in fruit, on peduncles or pedicels of 1—10 cm, in a lax open corymbose cyme. Involucral bracts linear, glabrous ciliate or pubescent, acute or subobtuse, 5—8 mm long, lax and spreading in fruit. Disk-

flowers yellow. Ligule of the ray-flowers white, sometimes wanting. Achenes slender elongated and gradually tapering towards the apex, glabrous setulose or minutely tubercled, those of the disk 5—7 mm long, the outer ones shorter, not or scarcely compressed, obtusely quadrangular, tipped with 4—2 spreading retrorsely barded strong setae. Receptacle shortly alveolate. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **N. d. N. v.** Often on borders of irrigation canals, waysides and in waste places. — **D. i.** Ismailia.

A common weed, probably of American origin, widely spread over most hot countries.

575. (35.) **Flaveria** Juss.

Heads one or several-flowered; all the flowers fertile, homogamous and tubular, or one female and short-ligulate. Disk corollas 5-toothed. Involucre of 2—5 mostly carinate-concave bracts. Pappus none. — Glabrous herbs, mostly annuals; with small and fascicled or glomerate heads or yellowish or yellowish flowers, and opposite, sessile leaves, the broader ones 3-nerved. Achenes mostly smooth and glabrous.

A small genus, mainly tropical American.

1378. **Flaveria Contrayerba** (Cav.) Pers. Synops. Plant. (1805), p. 816. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 554. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — Rather slender, 30—60 cm high, rarely more. Leaves oblong-lanceolate, contracted at the base and conspicuously 3-nerved. Heads in closer subsessile or short pedunculate or foliose-involucrate chiefly terminal glomerules; involucre of mostly 3-bracts, narrow, 3—5-flowered, commonly uniligulate; ligules not exceeding the disk or sometimes wanting; disk-corollas sparsely hirsute at the base. — Flow. February to April.

N. d. Alexandria; Qabâry; Mensall. — **D. i.** Desert-el-Tîh.

Local name: ward asfer (Ascherson).

Also known from Tropical America, where it is originally.

576. (36.) **Tagetes** Linn.

Involucral bracts in a single row, united in a toothed cup or tube. Receptacle flat, without scales. Flowers of the ray female, ligulate; disk-flowers tubular, 5-toothed. Anthers obtuse at the base. Style-branches flattened, obtuse or truncate, usually hirsute. Achenes linear, flattened. Pappus of several narrow very unequal scales or bristles. — Herbs, usually glabrous, the foliage and involucres

bearing oblong or round transparent glands or vesicles filled with a strongly-scented oil. Leaves opposite, entire or pinnate. Flower-heads large and solitary or small and corymbose or paniculate. Ray yellow or orange-red.

A genus of about 70 species, all from Tropical Africa, 2—3 cosmopolitain.

1379. **Tagetes minuta** L. Spec. Plant. I (1753), p. 1250. — Ascherson-Schweinf. Ill. Flor. d'Eg., p. 89 no. 213. — Tagetes glandulifera Schrank. Plant. Rar. Hort. Monac. II, tab. 54. — DC. Prodrom. V, p. 644. — Tagetes bonariensis Pers. Syn. II, p. 459. — Tagetes glandulosa Link. Enum. Plant. Hort. Berol. II, p. 339. — Tagetes porophyllum Vell. Flor. Flum. VIII, tab. 116. — An annual erect herb, often branched 40—60 cm high. Leaves alternate simply pinnate; the lower ones 3—4 cm long, lobes 4—8 jugate lanceolate, deeply serrate 1—1,5 cm long, the lower ones decurrent at the base. Heads densely corymbose, shortly peduncled. Involucre cylindrical, glabrous, greenish, 4 mm long, 1 mm diameter, with many browish glandular lines, teeth 4 deltoid. Ligules 2—3 paly yellow; achenes black 3 mm long; setae of the pappus 1—2 linear, the other short. — Flow. February to March.

N. d. Cairo, often in gardens and naturalized.

A native of Tropical America.

577. (37.) **Santolina** Tourn.

Capitula many-flowered, homogamous or heterogamous; ray-flowers few by abortion female, ligulate. Receptacle convex subhemisphaerical with oblong scales. Involucre often campanulate; involucel-bracts imbricate, appressed. Tube of the corolla often in the lower part with an annullus. Achenes oblong, subtetragonous. glabrous. — Shrubs, rarely herbs. Branches mostly ending in only one head. Capitula without bract. Flowers yellow, rarely white.

A small genus of only one species in the Mediterranean region.

1380. **Santolina chamaecyparissus** L. Spec. Plant. I (1753), p. 1179. — DC. Prodr. VI, p. 35. — Aschers.-Schweinf. Illustr. Flor. d'Eg., Supplem. p. 761. — A shrubby plant 50—60 cm high or sometimes somewhat more, branching from the base. Branches greyish or pubescent, the flower-bearing ones without leaves, monocephalous, the others leafy. Leaves tomentose, somewhat toothed, teeth obtuse; involucre campanulate; bracts of the involucel lanceolate with a middle-nerv. — Flow. February to April.

M. ma. Often in gardens at Alexandria and sometimes naturalized.

Common in the Mediterranean region and Middle Europe.

578. (38.) **Anthemis** Linn.

Capitula heterogamous radiate, ray-flowers 1-seriate, ligulate, conspicuous, white or yellow, female or neuter. Involucre hemispherical; bracts pluriseriate closely imbricate with scarious margins, outer successively shorter. Receptacle paleaceous convex or conical. Anther-base entire. Style-branches truncate, penicillate. Achenes oblong, apex obtuse; pappus 0 or coroniform or unilateral. — Herbs with alternate toothed or pinnatisect leaves often with narrow segments and terminal pedunculate often rather large capitula.

A considerable genus, chiefly European and Mediterranean.

A. Corolla-tube not winged at the base.
  I. Corolla-tube glabrous.
    a) Achenes rounded at the tip . . . . . 1. **A. microsperma.**
    b) Achenes truncate, bald or surmounted by a low crown.
      1. Greenish, more or less pubescent . . 2. **A. indurata.**
      2. Greyish-tomentose or lanuginose . . 3. **A. deserti.**
    c) Achenes with an auricle at their inner angle as long or half as long as they.
      1. Peduncles short. . . . . 4. **A. melampodina.**
      2. Peduncles long . . . . . 5. **A. Chia.**
  II. Corolla-tube hairy at the base.
    I. Ray-flowers sterile . . . . . 6. **A. Cotula.**
    II. Ray-flowers female.
      a) Peduncles not thickened . . . . . 7. **A. retusa.**
      b) Peduncles thickened.
        1. Leaves ovate-oblong . . . . . 8. **A. pseudocotula.**
        2. Leaves narrow-oblong . . . . . 9. **A. rotata.**
B. Corolla-tube winged at the base . . . . . 10. **A. mixta.**

1381. (1.) **Anthemis microsperma** Boiss. and Kotschy Diagnos. Plant. Or., ser. II fasc. 5 (1856), p. 108. — Flor. Or. III, p. 298. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 559. — Sickenberg. Contrib. Flor. d'Eg.. p. 247. — An annual plant, 20—30 cm high, or sometimes somewhat more, sparingly hirsute; stems procumbent, very slender, branching. Leaves 1 cm long, 1 mm broad, linear, with few lobes. Peduncles rather long, slender; heads small; scales of the involucre oblong-linear, chaff oblong-lanceolate, keeled, abruptly tapering; rays as long as the disk; achenes 1 mm long, black, 7—8-ribbed. — Flow. March to April.

M. p. Qatîya. — **D. l.** Pyramids of Gîza. — **O.** Siwa.

Also known from Arabia Petraea and Palestine.

1382. (2.) **Anthemis indurata** Del. Illustr. Flor. d'Eg. (1813), p. 363 tab. 47 fig. 3. — Boiss. Flor. Or. III, p. 302. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 561. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 168. — Anthemis secundiramea var. indurata DC. Prodrom. VI, p. 10. — An annual plant, 30—40 cm high, or sometimes somewhat more, appressed hairy, greenish, branching from the neck; stems prostrate, abbreviate, divaricately branched, often indurate. Leaves linear, somewhat fleshy, the first ones entire, the later ones divided into triangular-oblong lobes. Peduncles short and mostly thickened; scales of the involucre hirtulous, the outer ones lanceolate acute, the other ones obtuse, broadly scarious; receptacle conical with oblong scales, carinate with a conspicuous middle nerv; female ligules short, ovate-oblong; tube compressed widened at the base; achenes turbinate obtusely cingulate, smooth, somewhat concave at the tip. — Flow. March to April.

M. ma. Marmarica: Matruqa; Alexandria. — **N. d.** Alexandria.

Only known from Egypt.

1383. (3.) **Anthemis deserti** Boiss. Flor. Or. III (1875), p. 305. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 562. — Anthemis peregrina Decsne Flor. sinaic., p. 26 not of Linn. — Anthemis melampodina Del. var. deserti Aschers. in Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — DC. Prodrom. VI, p. 11. — An annual plant 10—15 cm high or sometimes somewhat more, appressed-woolly-canescent, branching from the neck: stems erect or ascending. Leaves oblong to linear in outline, pinnatipartite into linear or oblong, obtuse, undivided or trifid, callous-tipped lobes. Peduncles elongated, not thickened. Involucre umbilicate, scales lanceolate, acute, the inner scarious at the tip; chaf oblong, narrow at the base, acuminate, keeled; rays white or pink; achenes grooved, with tubercled ribs, bald or obsoletely margined. — Flow. March to April.

M. p. Rosetta. — **D. i.** Gebel Ekfên.

Local name: qurbayân (Muschler).

Also known from Arabia Petraea and Palestine.

1384. (4.) **Anthemis melampodina** Del. Illustr. Flor. d'Eg. (1813), p. 351 tab. 45 fig. 1. — Boiss. Flor. Or. III, p. 309. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 563. — Aschers. Flor. Rhinocol., p. 798 no. 146. — An annual plant, 15—25 cm high or sometimes somewhat more, ash-coloured, woolly, branching from the neck. Leaves small, oblong in outline, 1—2-pinnatipartite into linear-oblong, mucronate lobules. Peduncles short, not thickened; heads 2 cm broad; scales of the involucre hirsute, lanceolate to oblong,

the outer ones acute, the inner ones scarious-tipped; rays white. obovate-oblong, longer than the disk; outer achenes somewhat quadrangular, all furnished with an oblong, obtuse auricle, as long as they or longer. — Flow. March to April.

D. i. Sâlihîya; el-Qantara. — **D. a. sept.** Suez.

Local name: frakh-omm-'aly (Forsk.); arbayân (Schweinfurth); ribyân (Ascherson).

Also known from Arabia Petraea and Palestine.

var. **brachyota** Aschers. in Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. (1889) p. 761. — Pappus abbreviate, much shorter than the achenes. — Flow. March.

D. i. Wady-el-Arîsh.

Only known from this locality.

1385. (5.) **Anthemis Chia** L. Spec. Plant. I (1753), p. 1260. — Boiss. Flor. Or. III, p. 311. — Sibth. and Smith Flor. graec., tab. 883. — Anthemis libanotica DC. Prodrom. VI, p. 9. — Phalacrodiscus pyrethroides Decsne Ann. Scienc. Natur. (1835), p. 26. — Anthemis Visianii Weiss ex Boiss. Flor. Or. III, p. 311. — An annual plant. 20—30 cm long, or sometimes somewhat more, glabrescent, branching from the base; stems erect or ascending. Leaves ovate in outline, bipinnatipartite into oblong, acute, divergent, often 2—3-fid lobules; petiole fringed at the base. Peduncles long, not thickened; heads 3 cm broad; scales of the involucre with an undulating, scarious, rusty margin, the outer ones smaller, triangular, acutish, the inner ones linear-oblong, acute; chaff oblong-linear, acutish, translucent; rays longer than the disk; achenes cylindrical, ribbed, the outer one somewhat curved, with a translucent auricle as long as they, the inner one with a short auricle or a short, acute crown. — Flow. March to April.

M. p. Port Said, in deep sand, near the Canal (Muschler).

Also known from Italy, Greece, Arabia Petraea and Asia Minor.

1386. (6.) **Anthemis Cotula** L. Spec. Plant. I (1753), p. 1261. — Boiss. Flor. Or. III, p. 315. — Rchbch. Ic. XVI, tab. 109 fig. I. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 564. — Maruta Cotula DC. Prodrom. VI, p. 13. — Maruta foetida Cass. in Dict. Scienc. Natur. XXIX, p. 174. — An annual plant, 40—60 cm high, or rarely somewhat more, glabrescent, corymbose. Leaves ovate-oblong in outline, bipinnatipartite into linear, entire or 2—3-toothed mucronate lobules. Peduncles not thickened; scales of the involucre oblong, obtuse with a narrow, scarious margin; receptacle long-conical; chaff linear-subulate; achenes caducous, nearly terete, turbinate, more or

less tubercled, bald, convex at the tip, frequently with scalloped margin on account of the truncate ribs. — Flow. March to April.

N. d. N. v. Often on way-sides, and on borders of fields.

Local name: ribyân.

Also known from the other parts of the Sahara, whole Europe, Asia Minor, Caucasia and Syria.

1387. (7.) **Anthemis retusa** Del. Illustr. Flor. d'Eg. (1813), p. 105. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 565. — Anthemis cahirica Visian. Plant. Aeg., p. 36 tab. 6. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — An annual plant, 30—50 cm high, appressed hairy, branching from the base. Leaves ovate-oblong in outline 2—1-pinnatipartite into very small oblong-linear, prickly-toothed lobules. Peduncles not thickened; scales of the involucre oblong, obtuse, with broad, scarious margin; receptacle hemispherical, all chaffy; chaff linear, achenes not tubercled, nearly terete, tapering at the base, grooved, truncate, bald. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. D. i. D. a. sept. D. a. mer. A very common plant in deep sandy places.

Local name: ribyân-betâ-er-rîf (Klunzinger); surret-el-kebsh (Ascherson); generally: rilyân; 'aïn-el-qutt.

Also known from the other parts of the Orient.

1388. (8.) **Anthemis pseudocotula** Boiss. Diagnos. Plant. Or., ser. I fasc. VI (1849), p. 86. — Flor. Or. III, p. 317. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 566. — An annual plant, 30—40 cm high, or sometimes somewhat more, appressed puberulent, corymbose. Leaves ovate-oblong in outline, bipinnatipartite into oblong-linear, acute lobules. Peduncles at length thickened; outer scales of the involucre lanceolate, inner ones linear-oblong, long-scarious at the tip; receptacle conical; chaff linear; achenes persistent, furrowed, the outer ones somewhat obpyramidal, smooth or slightly tubercled at ones ribs, the inner obconical-terete, not tubercled, terminating, in a concave, entire or somewhat lobed margin. — Flow. March to April.

M. ma. Alexandria.

Also known from Syria, Mesopotamia to Persia.

1389. (9.) **Anthemis rotata** Boiss. Flor. Or. III (1875), p. 318. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 567. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 169. — Anthemis arvensis var. incrassata Aschers.-Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 560 not of Boiss. — An annual plant, 8—12 cm high or sometimes some-

what more, appressed-hairy, branching from the neck. Leaves small, oblong in outline, bipinnatipartite into triangular-linear, acute lobules. Peduncles short, at length much thickened; scales of the involucre oblong, the inner ones scarious-margined; receptacle ovate; chaff linear-awl-shaped; achenes persistent, sulcate, ribbed, tubercled at the ribs, the outer ones nearly quadrangular, the inner ones obconical; the tip of all truncate, radiate-lobed. — Flow. March to April.

M. ma. Mariut; Alexandria. — **M. p.** El-Grady; Sheykh Zoyêd. — **N. v.** Luksor; Aswân. — **O.** Little-Oasis. — **D. l. D. i. D. a. sept.** Borders of the deserts, common.

Local name: ribyân.

Also known from Cyrenaica, Arabia Petraea and Cyprus.

1390. (10.) **Anthemis mixta** L. Spec. Plant. I (1753), p. 1260. — Ormenis mixta DC. Prodrom. VI, p. 18. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Ormenis bicolor Cass. Dict. Scienc. Natur. XXXVI, p. 355. — Anthemis Cota Sibth. and Smith Flor. Graec., tab. 880 not of Linn. — Anthemis mixta Rchbch. XVI, tab. 100 fig. 1. — An annual plant, 30—50 cm high, or sometimes somewhat more, pubescent, erect, diffusely branched. Lower leaves oblong-spathulate to oblong-linear in outline, bipinnatisect into linear-lanceolate, mucronate lobules, upper leaves pinnatifid-serrate, all with a broad rachis. Heads 2 cm broad; scales of the involucre oblong, obtuse, margin scarious. — Flow. March to April.

M. p. Sheykh Zoyêd (Sickenberger).

Also known from Europe.

. . . . . .

579. (39.) **Anacyclus** Pers.

Heads many-flowered, radiate, rarely discoid. Ray-flowerets female, tube flattened, winged. Disk-flowerets tubular, perfect, 5-toothed. Achenes glabrous, more or less flattened, often crowned, the outer ones, at least, with a broad, pellucid wing on each side terminating in a small ear. Involucre imbricated. Receptacle chaffy. — Annual herbs with aspect of Anthemis.

A small genus in the Orient and the Mediterranean region.

1391. **Anacyclus alexandrinus** Willd. Spec. Plant. III (1800), p. 2173. — Boiss. Flor. Or. III, p. 322. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 568. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 659 no. 170. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Santolina terrestris Forsk. Flor. aeg.-arab., p. 147. — Tanacetum monanthos L. Mant. I. — Cyrtolepis monantha Less. Linn. 1831. — Cyrtolepis alexandrina DC. Prodrom. VI, p. 17. — Del. Illustr.

Flor. d'Eg., tab. 48 fig. 3. — An annual plant, 30—35 cm high or sometimes somewhat more, long-hairy, branching from the neck; stems prostrate, proliferous. Leaves oblong, petioled, pinnatisect with short segments. Capitula discoid, sessile or the upper ones somewhat peduncled, often thickened or incurved; bracts of the involucel hirsute oblong-lanceolate; receptacle convex with cuneate-rhombic scales; achenes compressed, orbicular, somewhat alate. — Flow. April to May.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Mariut; Alexandria-West and -East. — **N. f.** Medînet-el-Fayûm. — **D. i. D. a. sept. D. a. mer.** Rare in sandy places.

Local name: surr; surret-el-kebsh (Ascherson).

Also known from Tunisia, Tripolitania, Arabia and Palestine.

580. (40.) **Achillea** Linn.

Herbs, mostly perennial, with alternate, much divided, or rarely simple leaves; the flower-heads rather small, in a terminal corymb, with white or pink rays, and a yellow disk. Involucres ovoid or hemispherical, the bracts imbricated, only slightly scarious on the edges. Receptacle small, not convex, with chaff between the florets. Achenes without any pappus. Style nearly that of Senecio.

A considerable European, North American, and Asiatic genus.

A. Leaves pinnatisect into minute, transverse, imbricated lobes . . . . . 1. **A. Santolina.**
B. Leaves undivided, serrulate . . . . . 2. **A. fragrantissima.**

1392. (1.) **Achillea Santolina** L. Spec. Plant. I (1753), p. 1264. — Boiss. Flor. Or. III, p. 266. — DC. Prodrom. VI, p. 31. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 557. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — Aschers. Flor. Rhinocol., p. 798 no. 144. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 157. — Achillea Wilhelmsii C. Koch in Linnaea XXIV, p. 31. — A perennial plant, 20—60 cm high, or sometimes somewhat more, stems terete, simple or branching below, canescent. Leaves pubescent; segments of the lower leaves and those of young shoots somewhat distant. Corymbs compound; peduncles shorter or a little longer than the 5 mm long heads; scales of the involucre oblong, obtuse; rays yellow, very short. — Flow. March to April.

M. ma. Marmarica: Marmarica; Abusîr; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. **M. p.** El-'Arîsh.

Local name: qesûm (Forsk.); bishrîn (G. Roth); generally: ba'eytherân; ghobeyrâ (Aschers.).

Also known from the other parts of North Africa, Arabia Petraea, Palestine, Syria, Asia Minor and Persia.

1393. (2.) **Achillea fragrantissima** (Forsk.) Sch. Bip. in Flora XXXVIII (1855), p. 13. — Boiss. Flor. Or. III, p. 272. — DC. Prodrom. VI, p. 32. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 558. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — Aschers. Flor. Rhinocol., p. 798 no. 145. — Santolina fragrantissima Forsk. Flor. aeg.-arab., p. 147. — Del. Illustr. Flor. d'Eg., tab. 42 fig. 3. — A shrubby plant, 60 cm to 1 m high, or sometimes somewhat more; stems numerous, white-woolly, wand-like, rigid, paniculate-corymbose. Leaves small, sessile, thickish, oblong-linear to ovate, serrate. Heads ovate-oblong, 3—4 mm long, as long as the pedicels, in clusters of 3—4 on each branch. — Flow. March to April.

D. i. Wady-el-Arîsh. — **D. a. sept.** Common in the Wadies.

Local name: qesûm gebely (Forsk.); eleyân; alegiân (Schweinfurth); generally: ba'eytherân; babûneg.

Also known from Arabia Petraea, Palestine, Syria and Mesopotamia.

581. (41.) **Diotis** Desf.

Heads many-flowered, discoid. Flowers all perfect, the 5-toothed tube flattened-triquetrous, 2-auricled at the base, at length thickened, fungous, embracing the tip of the achene. Achenes oblong, 3—4-angled, tapering at the base, auricles adnate to the corolla-tube. Involucre imbricated. Receptacle convex, chaffy. — White-pannous, perennial herbs.

A small genus widely spread in the Mediterranean region.

1394. **Diotis maritima** Smith Encyclop. III (1825), p. 403. — Boiss. Flor. Or. III, p. 253. — Rchbch. Ic. XVI, tab. 107 fig. III. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 89 no. 556. — Sickenberg. Contrib. Flor. d'Eg., p. 246. — Aschers. Flor. Rhinocol., p. 798 no. 143. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 653 no. 166. — Athanasia maritima L. Spec. Plant. I, p. 1182. — Diotis candidissima Desf. Flor. Atlant. II, p. 261. — Otanthus maritimus Link and Hoffm. Flor. Port., p. 216. — A perennial plant, 25—40 cm high, or sometimes somewhat more, stems numerous from a woody root-stock, erect, and ascending, thick, zigzag, densely leafy, simple or sparingly branched. Leaves somewhat clasping at the base, ovate to oblong, 5 mm to 1,5 cm long, obtuse, entire or crenulate. Heads globular.

7 mm in diameter, short-peduncled, crowded-corymbose; scales of the involucre concave, ovate-oblong, obtuse. — Flow. March to April.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Abukîr, in deep sandy places. — **M. p.** Rosetta; Damietta.

Local name: hashîshet-er-rîh.

Also known from the other parts of the Mediterranean region.

582. (42.) **Chrysanthemum** Tournef.

Annual or perennial herbs (or, in some exotic species, shrubs), with alternate toothed or variously dissected leaves, and radiating flower-heads, solitary on terminal peduncles, or in corymbs. Involucres hemispherical, with a few rows of imbricate bracts, more or less scarious on the edges. Receptacle flat or convex, without scales. Achenes angular or striate, without any pappus, but sometimes crowned with a minute raised border. Style nearly that of Senecio.

A considerable genus, extending over Europe, northern and central Asia, and northern Africa. It has been divided by modern botanists into a number of small genera, founded upon minute, almost microscopical characters, having little relation to general habit. Among them Pyrethrum has been the most generally adopted, although botanists are but little agreed as to the characters or species which should be assigned to it.

A. Achenes triquetrous or 3-winged . . . . . 1. **C. coronarium.**
B. Achenes prismatic or turbinate . . . . . 2. **C. Parthenium.**

1395. (1.) **Chrysanthemum coronarium** L. Spec. Plant. I (1753). p. 1254. — Boiss. Flor. Or. III, p. 336. — Sibth. and Smith Flor. graec., tab. 877. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 571. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Aschers. Flor. Rhinocol., p. 798 no. 148. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 654 no. 172. — Pinardia coronaria Less. Synops., p. 255. — Rchbch. Ic. XVI, tab. 95 fig. II. — An annual plant, 30—80 cm high on sometimes somewhat more, glabrous; stem erect, branching, leafy. Lower leaves tapering at the base, upper half-clasping, all bipinnatisect into acutely toothed, lanceolate lobes, rhachis dentate-lobed. Rays obovate-oblong; achenes grooved, tubercled, those of disk compressed-4-angled, with a narrow wing at the inner side. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Everywhere common on way-sides and often infields.

Local name: qehawân (Forsk.); mandîlîye (Schweinfurth).

Also known from the other parts of the Mediterranean region.

var. **discolor** Dum. d'Urv. Enum. (1822), p. 112. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. (1889), p. 762. — Ligules white or yellow. — Flow. March to April.

M. ma. N. d. N. f. N. v. Often cultivated in Arabian gardens and naturalized. Cultivated since old Egyptian times.

Also known from the other parts of North Africa.

1396. (2.) **Chrysanthemum Parthenium** Bernh. Syst. Verz. Erf. (1800), p. 145. — Pyrethrum Parthenium Smith Flor. Brit. II, p. 900. — Boiss. Flor. Or. III, p. 344. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 572. — Matricaria Parthenium L. Spec. Plant. I p. 1250. — Ic. Flor. Dan., tab. 674. — Matricaria odorata Lam. Ill., tab. 690. — A perennial herb, 30—60 cm high, or sometimes somewhat more, puberulous or glabrous stems erect, striate, branching from the base. Leaves petiolate ovate in outline, pinnatisent, segments, elliptical-oblong, obtuse, pinnatifid, the upper ones confluent. Capitula corymbose, few shortly pedunculate; scales of the involucre corinate, the lower ones scarious at the tip, obtuse. Ligules obovate as long as the disk; achenes very small, white with a very short crown. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. a. sept. Everywhere cultivated in the gardens and often subspontaneous.

Local name: ara'ûl; kerty (Schweinfurth).

Also known from Europe.

583. (43.) **Matricaria** Linn.

Capitula heterogamous, radiate; ray-flowers in few rows, female, fertile or barren, ligulate; disk-flowers in many rows, hermaphrodite, fertile, tubular. Involucre depresso-hemispherical; bracts in a few rows, imbricated. Receptacle convex, naked, areolate. Corolla of the disk-flowers pentamerous. Anthers obtuse and entire at the base, ecaudate, apiculate at the apex. Style-branches compressed, rounded (not appendaged in our species). Achenes shortly oblong, somewhat compressed (4-ribbed and alike on both faces in our species); apex obtuse; pappus (in our species) rudimentary, of about 8 little teeth about the annular apex of the achene. — Herbs with alternate pinnatifid leaves, terminal pedunculate capitula of moderate size, white ray-florets and yellow disk-florets.

A genus of several species, widely spread.

A. Achenes not compressed.

I. Heads radiate . . . . . 1. **M. Chamomilla.**

II. Heads discoid . . . . . 2. **M. aurea.**

B. Achenes compressed.
I. Achenes conspicuously 3-ribbed . . . . . 3. **M. auriculata.**
II. Achenes ribless . . . . . 4. **M. tridentata.**

1397. (1.) **Matricaria Chamomilla** L. Spec. Plant. I (1753), p. 1256. — Boiss. Flor. Or. III, p. 323. — Ic. Schkuhr, tab. 253 b. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 569. — Chamomilla officinalis C. Koch in Linnaea XVII, p. 45. — Matricaria suoveolens L. Flor. suec., p. 138. — Griseb. Spec. Flor. Rum. II, p. 200. — DC. Prodrom. VI, p. 51. — Resembles so closely the Anthemis Cotula that it can scarcely be distinguished but by the odour and the absence of the scales between the flowers. It is, like that plant, an erect, branching annual; the leaves twice or thrice pinnate, with short, but very narrow linear segments, and the flower-heads rather large, on terminal peduncles. Involucral bracts all nearly of the same length, with scarious edges. Ray-flowers white. Receptacle much elongated as the flowering advances and hollow. Achenes without any border at the top. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta. — **N. d. N. f. N. v.** Often on way-sides and on waste places.

Local name: babûnngi; babûnnguy; 'aïn-el-qutt (Aschersón).

Of Mediterranean origin, now also common in whole Europe, except the extreme north.

1398. (2.) **Matricaria aurea** (L.) Boiss. Flor. Or. III (1875), p. 324. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 570. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 762. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — Ascherson-Schweinf. Primit. Flor. Marmaric., p. 654 no. 171. — Cotula aurea L. Spec. Plant. I, p. 1257. — Anacyclus aureus Lam. Illustr., tab. 700 fig. 2. — Perideraea aurea Willk. and Lange Prodrom. Flor. Hisp. II, p. 90. — Chamomilla aurea I. Gay in Bourg. and Bel. exsicc. — An annual plant, 10 to 25 cm high, or sometimes somewhat more, branching from the neck; stems slender, ascending. Leaves pinnatipartite into setaceous, entire or 3-fid lobules. Heads 5 mm broad; receptacle ovate, achenes minute, bald, or with an oblique ear-like crown. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. Common throughout, even in deserts. A fragrant plant, the infusion of which is much used as a febrifuge and carminative.

Local name: qumeydy (Aschersón); qamâ'ila (G. Roth); gumeyla (Aschersón).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Palestine, Syria, Mesopotamia and Persia.

1399. (3.) **Matricaria auriculata** (Boiss.) Muschler comb. nov. — Chamaemelum auriculatum Boiss. Diagnos. Plant. Orient., ser. I fasc. 11 p. 23. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 761. — Aschers. Flor. Rhinocol., p. 798 no. 147. — Pyrethrum auriculatum Boiss. exsicc. — An annual plant, 10—20 cm high or sometimes somewhat more, glabrescent; stems 1-headed, scape-like. Leaves pinnatisect into linear, entire or pinnate-lobuled segments. Heads 8 mm broad; scales of the involucre ovate-oblong, scarious-margined; receptacle ovate; achenes small, inner face thick-ribbed and deeply furrowed; auricle oblong, translucent, as long as the achenes or longer. — Flow. March to April.

D. i. Wady-el-ʿArîsh.

Also known from Arabia Petraea and Palestine.

1400. (4.) **Matricaria tridentata** (Del.) O. Hoffm. in Engler-Prantl Natuerl. Planzenfam. IV, fasc. 5 (1894), p. 277. — Chlamydophora tridentata Ehrenberg in Less. Synops. Compos., p. 255. — Boiss. Flor. Or. III. p. 359. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 575. Aschers.-Schweinf. Primit. Flor. Marmaric., p. 654 no. 173. — Balsamita tridentata Del. Ill. Flor. d'Eg., p. 25 tab. 47. — Tanacetum uliginosum Sibth. and Smith Prodrom. Flor. graec., p. 167. — Cotula coronopifolia Kotschy Cyp., p. 240 not of Linn. — An annual, glabrous plant, 10—20 cm high or sometimes somewhat more; branching from the base; branches simple and leafy, monocephalous. Leaves fleshy broad-linear, the lower ones opposite often tridentate at the tip, the upper ones alternate, gradually smaller, entire; capitula long-peduncled; scales of the involucre unequal, obovate the inner ones broadly scarious-margined; achenes glabrous with a small crown. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West.

Also known from Tunisia.

584. (44.) **Artemisia** Linn.

Capitula heterogamous, discoid; outer flowers pistillate, tubular. Involucre ovoid or campanulate, bracts panciseriate, subequal, imbricate. Receptacle naked or nearly so. Anther-base entire or 2-dentate. Style-branches truncate or penicillate. Achenes narrowly ellipsoidal in our species; pappus 0. — Herbs or shrubs with 2 to 3-pinnatisect (simply incised or entire) alternate leaves and small often pendulous capitula in racemose panicles.

A large genus chiefly confined to the Northern hemisphere.

A. Receptacle naked.
III. Flowers of the rays female, of the disk perfect, sterile . . . . . 1. **A. monosperma.**
II. Heads homogamous . . . . . 2. **A. Herba alba.**
III. Flowers of the rays female, of the disk perfect, fertile . . . . . 3. **A. judaica.**
B. Receptacle hairy . . . . . 4. **A. arborescens.**

1401. (1.) **Artemisia monosperma** Del. Illustr. Flor. d'Eg. (1813), p. 120 tab. 43 fig. 1. — Boiss. Flor. Or. III, p. 363. — Achers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 576. — Aschers. Flor. Rhinocol., p. 799 no. 749. — Aschers. Flor. Sirb., p. 812 no. 21. — Artemisia Delileana Bess., Supplem. p. 89. — Oligosporus monospermus Decsne. Plant. Bov., no. 172. — Artemisia inculta Sieb. in exsicc. not of Del. — A shrubb, 5—70 cm high or sometimes more, glabrous; stems thick, ascending, diffuse or erect, ending in a long, pyramidal, many-flowered panicle. Leaves of the sterile shoots pinnatisect, of the stem short, frequently clustered, simple, linear, or trisect into linear lobes. Heads crowded, short-pedicelled, nodding, ovate, few-flowered; involucre glabrous, scales gradually enlarging from without inward, the outer ones orbicular, the inner ones oblong; pistillate flowers 2, perfect 8—10, seed usually 1. — Flow. March to April.

M. ma. M. p. D. l. D. i. D. a. sept. Often in deep sandy places.

Local name: lellel (Ehrenberg); generally: ʾâdehr; ʾadîrr (Ascherson); ʾadêr (Schweinfurth).

Also known from Arabia Petraea.

1402. (2.) **Artemisia Herba alba** Asso Flor. Arrag. (1781), p. 117 tab. 8. — Boiss. Flor. Or. III, p. 365. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 577. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 762. — Aschers. Flor. Rhinocol., p. 799 no. 150. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 654 no. 174. — Artemisia Herba alba var. densiflora and var. laciflora Boiss. Flor. Or. III, p. 365. — Artemisia arragonensis Lam. Encyclop. II, p. 269. — Artemisia Valentine Willd. Spec. Plant. III, p. 1816. — Artemisia Oliveriana J. Gay in DC. Prodrom. VI, p. 101. — A shrubb, 30—50 cm high, more or less woolly-canescent, branching from the base, stems ending in an oblong panicle, with spreading, rigid branches. Leaves of the sterile branches petioled, ovate-orbicular in outline, bipinnatipartite into oblong to oblong-linear lobes, those of the fertile branches much smaller, few-lobed and clustered; bracts very small, ovate. Heads sessile, oblong, 2—4-flowered; outer scales very small, orbicular, concave, inner ones oblong to oblong-linear, larger. — Flow. March to April.

M. ma. D. l. D. i. D. a. sept. A characteristic plant in deep sand and on stony ground.

Local name: ghobeyrâ; generally: shîh.

Also known from Spain and the other parts of North Africa and Orient.

1403. (3.) **Artemisia judaica** L. Mant. (1771), p. 281. — Boiss. Flor. Or. III, p. 381. — Del. Illustr. Flor. d'Eg., tab. 45. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 578. — A shrubby plant, 50 to 70 cm high, or sometimes somewhat more, tomentellous-canescent, branching into a spreading, compound, pyramidal panicle. Leaves serile branches petioled or sessile, obovate-cuneate, 1—2-pinnatifid or parted, primary segments parted into 3—7, ovate-oblong to oblong, entire or obtusely-toothed lobes, leaves of the flowering branches minute, clustered. Heads hemispherical, 3 mm broad, nearly sessile, in dense racemes along the branches of the panicle; scales of the involucre ovate. — Flow. December to March.

D. l. D. i. D. a. sept. One of the commonest plants of the deserts and Wadies.

Local name: ba'cytherân.

Also known from Arabia Petraea.

1404. (4.) **Artemisia arborescens** L. Spec. Plant. I (1753), p. 1180. — Boiss. Flor. Or. III, p. 372. — Rchbch. Ic. XVI, tab. 138 fig. II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 81. — Sibth. and Smith Flor. graec., tab. 1856. — Artemisia argentea DC. Prodrom. VII, p. 298. — A shrubby plant, 50 cm to 1 m high, or sometimes somewhat more, silky-canescent; stems erect, shrubby, ending in a narrow panicle. Leaves broad-ovate in outline, 2—3-pinnatipartite into linear lobes. Racemes loose, one-sided; heads 5 mm broad, globular; pedicels as long as the heads or shorter, scales of the involucre obtuse, the outer ones oblong, the inner ones ovate. — Flow. March to April.

M. ma. M. p. N. d. Often cultivated in the old Arabian gardens and sometimes naturalized.

Local name: sheba.

Also known from Spain, France, Greece, Algeria, Tunisia, Tripolitania and Palestine.

585. (45.) **Cotula** Linn.

Involucre hemispherical or campanulate, with few nearly equal bracts, in about 2 rows. Receptacle flat, convex or conical, without scales. Flowers of the circumference in 1 or several rows, female, without any or with a short broad or conical corolla. Disk-florets

numerous, tubular, hermaphrodite, sometimes sterile, 4 or 5-toothed. Anthers obtuse at the base. Style-branches obtuse or truncate, or the style sometimes undivided. Achenes flattened, sometimes winged, without any pappus. — Herbs usually small or decumbent, with alternate entire lobed or dissected leaves. Flowers-heads small, pedunculate.

A considerable genus, dispersed over the warmer and temperate regions of the Old World, with a few American species.

A. Female flowers in many rows . . . . . 1. **C. anthemoides.**
B. Female flowers in one row . . . . . 2. **C. cinerea.**

1405. (1.) **Cotula anthemoides** L. Spec. Plant. I (1753), p. 891. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 574. — DC. Prodrom. VI, p. 78. — Cotula dichrocephala Sch. Bip. in Herb. Schimp. Abyss. II, no. 1325. — Boiss. Flor. Or. III, p. 359. — Pleiogyne anthemoides C. Koch in Bot. Zeitung I (1843), p. 46. — Usually hirsute or pubescent, much-branched, annual; branches spreading or prostrate, ranging up to 18 cm long. Leaves alternate, deeply sub-bipinnatifid, obovate in outline, 8—12 mm long, half-clasping at base, lobes lanceolate or ovate, apiculate. Capitula 4—6 mm diameter, solitary, terminal; peduncles not exceeding the leaves. Female flowers numerous, in many rows. Involucral bracts obtuse, bordered with scarious margins. Achenes bordered with narrow wing. Receptacle nearly flat, finely tubercled. Pappus 0. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. A common plant on way-sides, in waste and sandy places.

Local name: ribbîn (Schweinfurth).

Also known from Tropical Africa to South Africa and Northern India.

1406. (2.) **Cotula cinerea** Del. Illustr. Flor. d'Eg. (1813), p. 131 tab. 47 fig. 4. — Brocchia cinerea Vis. Plant. Aeg. and Mub., p. 35. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 90 no. 573. — Boiss. Flor. Or. III, p. 358. — Tanacetum cinereum DC. Prodrom. VI, p. 131. Cotula minor Carud Plant. exsicc. — Cenocline cinerea C. Koch in Bot. Zeitg. I (1843), p. 41. — Grangea cinerea Link Enum. Plant. Hort. Berol. II, p. 344. — Densely villous pale green herb, sometimes suffruticose at the base, 2—12 cm high or sometimes somewhat more. Leaves prinnatifid, alternate, obovate or spathulate in outline, narrow below, 8—10 mm long; lobes oblong, obtuse. Capitula 5—6 mm diameter, pedunculate, terminal; peduncles 1—2 cm long, exceeding the leaves. Involucral bracts linear. Female flowers few or usually wanting. Achenes not winged. Pappus 0. Receptacle convex, nearly naked. — Flow. December to March.

D. l. D. i. D. a. sept. A common plant in deep sandy places. *Local name:* afrash; sekrân; ribyân.

Also known from Algeria, Tunisia, Tripolitania and Arabia Petraea.

586. (46.) **Senecio** Linn.

Flower-heads homogamous and discoid or heterogamous and radiate. Involucre of nearly equal bracts apparently in a single row, linear or very rarely ovate, the margins often scarious and imbricate, with or rarely without a few small ones at the base passing into the bracts on the peduncles. Receptacle naked or pitted, the borders of the pits rarely toothed or produced into a few short scales. Flowers of the ray when present female or rarely neuter, ligulate. Disk-flowers tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base, the upper portion of the filament often thickened. Style-branches truncate, usually bearing a tuft of minute hairs and very rarely a short obtuse appendage. Achenes striate or angular. Pappus of numerous simple scabrous or denticulate bristles. — Herbs or very rarely shrubs, glabrous-pubescent or clothed with cottony wool. Leaves alternate, entire or divided, often rather thick. Flower-heads terminal, solitary, corymbose or paniculate. Flowers usually yellow, rarely purple or white.

The largest genus among Compositae, and ranging nearly over the whole world, although the individual species are often very local.

A. Rays none, or much shorter than the involucre.
  I. Achenes glabrous . . . . . 1. **S. belbeysius.**
  II. Achenes pubescent.
    a) Cyme compact, dense.
      1. Stems-leaves cordate clasping at the base . . . . . 2. **S. flavus.**
      2. Stems-leaves half-clasping at the base 3. **S. vulgaris.**
    b) Cyme broad, loose . . . . . 4. **S. aegyptius.**
B. Ray as long as the involucre . . . . . 5. **S. coronopifolius.**

1407. (1.) **Senecio belbeysius** Del. Illustr. Flor. d'Eg. (1813), p. 126 tab. 45. — Boiss. Flor. Or. III, p. 385. — Muschler in Engler's Bot. Jahrb. XLIII (1908), p. 54. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 580. — Sickenberg. Contrib. Flor. d'Eg. p. 247. — Acleia Belbeycia DC. Prodrom. VI, p. 340. — A annual plant, 30—50 cm high, or sometimes somewhat more, glabrous; stems ascendent branching from the base, loosely corymbosed. Lower leaves petioled, ovate, crenate and lobate; stem-leaves sessile half-clasping with a auricled base, oblong-lanceolate, pinnatifid or partite; peduncles longer

than the small discoid hemispherical head; scales of the involucre few lanceolate, short membranous-margined in the upper part mostly attenuate; florets yellow sometimes purplish; achenes glabrous, smooth shortly attenuate at the base and the top; pappus 3 times longer than the achenes. — Flow. March to April.

N. d. N. v. A common herb on way-sides.

Local name: libbeyn.

Only known from Egypt.

1408. (2.) **Senecio flavus** (Decsne.) Sch. Bip. in Webb. and Berth. Phyt. Canar. III (1847), p. 317. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 581. — Senecio Decaisnei DC. Prodrom. VI, p. 342. — Boiss. Flor. Or. III, p. 386. — Crassocephalum flavum Decsne Flor. sinaic, p. 27. — An annual herb, 20—40 cm high or sometimes somewhat more; stems erect, forked, rarely simple. Leaves rather fleshy, the lower ones ovate-oblong, toothed, short-petioled, those of the stem cordate-clasping at the base, irregularly toothed. Heads discoid, obconical-cylindrical, 1 cm long, 4 mm broad; pappus caducous, longer than the achenes. Flow. March to April.

D. l. Bibân-el-Moluk near Thebes; **D. a. sept.** Serapeum; Bir Suez; Suez; Tura; Wady Dugla near Helwân. — **D. a. mer.** Qoseyr.

Local name: hedhedîd; hadhadîd; (Klunzinger).

Also known from Canary Islands, Algeria and Arabia.

1409. (3.) **Senecio vulgaris** L. Spec. Plant. I (1753), p. 1216. — Ic. Flor. Dam., tab. 513. — Boiss. Flor. Or. III, p. 386. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 582. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — DC. Prodrom. VI, p. 341. — Erect, glabrous, 12 to 40 cm high, branched from the base, annual. Branches terete, striate. Lowest leaves dentate or subentire, oblong-spathulate, petiolate, scarcely 2 cm long, stem-leaves pinnatifid or pinnatipartite, sessile, auriculate-amplexicaul, ranging up to 5 by 2 cm, segments distant, spreading, oblong or ovate, obtuse, as well as the rhachis more or less toothed. Capitula oblong, discoid 5 mm long, on short slender pedicels, in dense corymbose cymes. Calyculus of several minute appressed bracts. Involucral bracts linear. Achenes puberulous. — Flow. December to May.

M. ma. M. p. N. d. N. f. N. v. O. A common weed in fields and ways.

Local name: mureyra (Muschler).

Widely spread over Europe and the East Mediterranean basin, extending to America, and introduced into New South Wales.

1410. (4.) **Senecio aegyptius** L. Spec. Plant. I (1753), p. 1216. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 583. — Boiss. Flor. Or. III, p. 387. — (inclus. the variet. discoideus and verbenaefolius.) — Senecio arabicus L. Mant., p. 114. — Senecio verbenaefolius Jacq. Ic. Hort. Vindob. I, p. 2 tab. 3. — Senecio triflorus L. Spec. Plant. I, p. 1216. — DC. Prodrom. VI, p. 342. — Annual, glabrous in most parts, about 25—70 cm high, not much branched, leafy. Leaves pinnatifid or pinnatipartite, mostly oval in general outline, 2—6 1/2 cm long, upper sessile amplexicaul or subpetiolate with an auriculate base, lower narrowed into a petiole; lobes dentiform or toothed. Capitula campanulute, 5 mm long, on slender pedicels ranging up to 8 mm in a divaricate corymbose cyme. Calyculus of 6—9 short bracts. Involucral bracts linear with a lanceolate tip and scarious margin, equalling the pappus. Ligule absent. Achenes puperulous all over, castate. — Flow. February to April.

N. d. N. f. N. v. O. Greet Oasis. — Everywhere as a weed common.

Local name: kus (Forsk.); sorbeyh (Ehrenberg); beysum (Ascherson); libbeyn (G. Roth); mormude (Ascherson); bellash ma'îz (Muschler).

A common plant also in Cordofan and Nubia.

1411. (5.) **Senecio coronopifolius** Desf. Flor. Atlant. II (1798), p. 273. — Boiss. Flor. Or. III, p. 390. — Webb. and Berth. Phyt. Canar. III, p. 320 tab. 108. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 584. — Aschers. Flor. Sirbon., p. 812 no. 22. — Aschers. Flor. Rhinocol., p. 799 no. 151. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 176. — Sickenberg. Contrib. Flor. d'Eg., p. 247. — DC. Prodrom. VI, p. 1344. — Annual, 8—60 cm high, erect, branched, glabrous in most parts. Leaves fleshy, sessile, semi-amplexicaul, pinnately lobed or entire, 1—5 cm long, lobes linear and sometimes dentate or dentiform; margins revolute. Capitula campanulate, at length hemispherical, about 5 mm long, 1 or few together, on peduncles or pedicels ranging up to 2 1/2 cm, forming a wide corymbose cyme. Calyculus of 6—8 short lanceolate bracts. Involucral bracts linear, sometimes broadly so, with a lanceolate tip, dark-coloured at the apex, with narrow scarious margins, about equalling the flowers. Ligule of the marginal florets oblong, shorter than the involucre. Achenes costate, minutely setulose. — Flow. October to March.

M. ma. M. p. N. d. N. f. N. v. N. v. mer. O. D. l. D. i. D. a. sept. D. a mer. One the commonest plants.

Local name: qorreys (Forsk.); djerdjîr (Wilkinson); murreyr (Ascherson); birshemân; frakh-ommaly; djerdîr-el-djebel (Ascherson).

Common in the whole Mediterranean region, Arabia Petraea and Palestine.

587. (47.) **Calendula** Linn.

Heads many-flowered, radiate, heterogamous. Involucre imbricated in about 1 row, scales nearly equal. Rays strap-shaped, pistillate, fertile; branches of style linear. Flowers of disk tubular, perfect, 5-cleft, sterile, stigma capitate. Achenes in 2—3 rows, curved, of different forms, the outer ones prickly at the back. — Perennial, biennial, or annual herbs, with orange-colored or yellow rays.

A small genus widely spread in the Mediterranean region.

A. Ray-flowers twice as long ats the involucre.
  I. Marginal achenes 3—4 times as long as the involucre . . . . . 1. **C. palaestina.**
  II. Marginal achenes $1^1/_2$—2 times as long as the involucre . . . . . 2. **C. bicolor.**
B. Ray-flowers once and a half as long as the involucre 3. **C. persica.**
C. Ray-flowers as long as the involucre . . . . . 4. **C. aegyptiaca.**

1412. (1.) **Calendula palaestina** Boiss. Diagnos. Plant. Or., ser. I fasc. X (1849) p. 83. — var. **brachyrrhyncha** Aschers.-Schweinf. Ill. Flor. d'Eg., p. 92 no. 585. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Calendula ceratosperma Viv. Flor. Libyc., p. 59 tab. 20. — Calendula stellata Cosson Sertul. Tunet., p. 31. — An annual plant, 20—50 cm high or sometimes somewhat more, somewhat roughish, glutinous; branches erect. Heads 1,5 cm broad; rays twice as long as the involucre; marginal achenes with 2—2,5 cm long beaks, 3—4 times as long as the involucre, frequently crested-toothed at the margin; intermediate ones much inflated, boat-shaped; inner ring-like, prickly at the back. — Flow. March to April.

M. ma. Alexandria.

Also known from Palestine.

1413. (2.) **Calendula arvensis** L. Spec. Plant. I (1753), p. 1303. — var. **bicolor** DC. Prodrom. VI (1837), p. 452. — Calendula bicolar Rafin. Caratt., p. 82. — Boiss. Flor. Or. III, p. 418. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 586. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 763. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Rchbch. Ic. XV, tab. 159. — Calendula arvensis Coss. in Bull. Soc. Bot. Franc. XXII, p. 66 not of Linn. — An annual plant, 20 to 40 cm high, pubescent; stems erect or decumbent. Heads 1,5 cm broad, about twice as long as the involucre; outer achenes beaked, once and a half to twice as long as the involucre; intermediate ones inflated, boat-shaped; inner ring-like, wrinkled at the back. — Flow. March to April.

M. ma. Alexandria; Montaza. — **N. f.** Medînet-el-Fayûm. — **O.** Siwa. — **D. a. sept.** Wady Khafûra in the Northern Galala.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Italy, Greece.

1414. (3.) **Calendula persica** C. A. Mey. Enum. (1823), p. 72. — var. **gracilis** (DC.) Boiss. Flor. Or. III (1875), p. 418. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 587. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 178. — Calendula gracilis DC. Prodrom. VI, p. 453. — A small annual plant, 3—8 cm high, rarely somewhat more, papillose-glutinous, branching from the neck. Heads 8 mm to 1 cm broad, rays once and a half as long as the involucre; achenes all ring-like, prickly at the back, winged at the face, three times as large as the wrinkled, inner ones. — Flow. March to April.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **D. a. sept.** On stony ground in the Wadies, not rare.

Also known from Syria.

1415. (4.) **Calendula aegyptiaca** Pers. Synops. II (1807), p. 492. — Boiss. Flor. Or. III, p. 419. — Aschers. Flor. Rhinocol., p. 799 no. 152. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 588. — Murbeck Contrib. Flor. Nord-Ouest Afrique I, p. 101. — Calendula platycarpa Coss. in Bull. Soc. Bot. Franc. III, p. 564. — Calendula malvaecarpa, Calendula subinermis and Calendula thapsiaecarpa Pomel Nouv. Mat. Flor. Atlant., p. 33—34. — Calendula gracilis Coss. in Bull. Soc. Bot. Franc. XII, p. 66 not of DC. — Calendula aegyptiaca var. microcephala Boiss. Flor. Or. III, p. 419. — Calendula micrantha Boiss. Diagnos. Plant. Or., Ser. II fasc. 6 p. 3 not of Tineo. — Calendula microcephala Kralik Plant. aeg. exsicc. — Rchbch. Ic. XV, tab. 891. — An annual plant, 20—50 cm high or sometimes somewhat more, papillose-hairy, glutinous. Heads hardly 1 cm broad, few-flowered; rays papillose-hairy at the base, hardly longer than the involucre; marginal achenes long-prickly at the back, ending in a slender beak as long as or longer than the seed; intermediate ones winged-crested or boat-shaped; inner ring-like, wrinkled. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. A common plant throughout.

Local name: tabb'aïny; kahlâ (Forsk.); mutteyn; ghereyya; 'aïn-esh-shems; 'aïn-el-qutt (Ascherson); 'aïn-es-sofrâ (Schweinfurth); zibbeyd (Ascherson).

Also known from Spain, Greece, Morocco, Algeria, Tunisia, Tripolitania, Arabia Petraea and Palestine.

var. **suberostris** Boiss. Flor. Or. III (1875), p. 419. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 91 no. 588. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Calendula sancta L. Spec. Plant. I, p. 1304 (?). — Marginal achenes winged-inflated; beak short or often 0; intermediate ones beakless. — Flow. March to April.

M. ma. N. d. N. f. D. a. sept. Between the type.

Also known from Palestine.

588. (48.) **Gundelia** Tournef.

Headlets of 5—7 flowers, subtended by a prickly bract of the compound head, connate with the prickly, united scales of the involucre, the central flower of each headlet fertile, the others sterile. Anthers long, linear, base obtusely sagittate. Style somewhat hispid, branches thick, flat, cylindrical. Achenes large, somewhat compressed-tetragonal, tapering at the base, tipped with a spongy, minutely toothed cup. The common involucre of each headlet growing, and united into a leathery, obpyramidal body, spiny at the tip, and falling at maturity. — Milky, prickly herbs, with aspect of Eryngium.

A small genus in the Orient.

1416. **Gundelia Tournefortii** L. Spec. Plant. I (1753), p. 1315. — Boiss. Flor. Or. III, p. 421. — Aschers. Flor. Rhinoc., p. 799 no. 153. — A perennial plant, 40—50 cm high or sometimes somewhat more, stems thick, simple, or with a few, short, corymbose branches above. Leaves leathery, rigid, very thick, with prominent veins, oblong to oblong-lanceolate, pinnately lobed or parted, spiny-toothed. — Flow. March to April.

D. i. Between El-Grâdy and Kharuba.

Also known from Arabia Petraea and Palestine.

589. (49.) **Echinops** Linn.

Capitula 1-flowered, usually numerous and densely aggregated in globose heads: common involucre usually concealed, of small or setiform reflexed scales. Partial involucres of numerous rigid imbricate pointed or spinose bracts the outer successarily shorter and usually passing gradually or abruptly into slender setae; inner bracts sometimes fasciculate-spinulose near the apex. Corolla regular. Achenes elongate subterete; pappus of nearly free or connate more or less paleaceous setae. — Spinose thistle-like herbs, frequently more or less hoary-tomentose, with alternate pinnati- or bipinnati-

sect spinescent leaves and solitary terminal globose compound heads, varying to 3—4 in. diameter.

A considerable genus of the Mediterranean region and temperate Asia, wanting south of the equator.

A. Scales of the partial involucre all glabrous.
  I. Leaves entire . . . . . 1. **E. Hussonii.**
  II. Leaves lobate.
    a) Heads long and copiously cornigerous . . 2. **E. galalensis.**
    b) Heads not cornigerous . . . . . 3. **E. glaberrimus.**
B. Outer scales of the involucre at least usually woolly or glandular . . . . . 4. **E. spinosus.**

1417. (1.) **Echinops Hussonii** Boiss. Diagnos. Plant. Or., Ser. I fasc. 10 (1849), p. 86. — Flor. Or. III, p. 425. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 92 no. 590. — A perennial plant, 60—90 cm high, or sometimes somewhat more; stems glabrous, sulcate, leafy, simple. Leaves oblong on the upper surface somewhat araneous on the under surface canescent, shortly and irregularly repande-lobate, acute, lobes often narrowed into spines; glomerules homogamous; penicil composed of white setae, twice as long as the involucre; scales of the involucre 18—20, the lower ones like the pencil, deltoid-spathulate, acute pectinate at the margin, narrowed at the base; the intermediate ones subulate-attenuate; the inner ones obtuse fimbriate at the top; setae of the pappus free or connate into a crown, barbellate. — Flow. January to April.

D. a. mer. Qoseyr.

Only known from Egypt.

1418. (2.) **Echinops galalensis** Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. (1889) p. 763. — Echinops glaberrimus DC. var. cornigerus Boiss. Flor. Or. III, Supplem. p. 304. — A perennial plant, 30—60 cm high or sometimes somewhat more; stems erect, simple or somewhat branching in the upper part, striate, araneous, in the lower part glabrous in the upper parts often canescent, glandulous. Leaves white-tomentose, linear, pectinate-toothed with triangular shortly spinose teeth, somewhat rigid, lanceolate in outline, divaricately bipinnatipartite, revolute at the margin, 2—3 cm long. Heads solitary pedunculate, 3—5 cm in diameter, cornigerous; pencil composed of ciliate-scabrous setae half as long as the involucre; scales of the involucre 18—20, the lowest 2—4 rhomboid at the top lanate at the back, with 2—4 setae on each side, ciliate at the top; the intermediate ones lanceolate narrowed at the base 1—1,5 cm long, all carinate, sinuate-pectinate-ciliate in the anterior part, with teeth in 3 cm long spines attenuate; the inner ones half as long as the

intermediate ones, free to the base, circa 2 mm long, toothed at the top. Style bifid, barbellate at the back. Setae of the pappus free. — Flow. March to April.

D. a. sept. In the Wadies of the Northern Galala.

Local name: Khashîr.

Only known from Egypt.

1419. (3.) **Echinops glaberrimus** DC. Ann. Scienc. Natur. (1834), p. 260. — Boiss. Flor. Or. III, p. 426. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 92 no. 591. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 763. — A perennial plant, 40—60 cm high or sometimes somewhat more, glossy, glabrous, except slightly cobwebby, under face of the leaves; stem slender, simple, 1-headed. Leaves rigid, prominently nerved, lanceolate, pinnatipartite into small, ovate-oblong segments, with crowded, spiny lobes. Pencil half as long as the involucre; scales of the involucre about 16; chaff of the pappus short, free. — Flow. March to April.

D. a. sept. Suez.

Local name: Khashîr.

Also known from Arabia Petraea.

1420. (4.) **Echinops spinosus** L. Mant. (1771), p. 119. — Boiss. Flor. Or. III, p. 429. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 92 no. 592. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — Aschers.-Schweinf. Primit. Flor. Marmaric, p. 655 no. 179. — Echinops Bovei Boiss. Diagnos. Plant. Or., Ser. I fasc. VI p. 99. — Sibth. and Smith Flor. graec., tab. 924. — Echinops echinophorus Boiss. Diagnos. Plant. Or., Ser. I fasc. X p. 87. — Stem erect, branched, 90 cm to 2 m high, terete, more or less white-cottony, not glandular. Stem-leaves sessile, ovate, pinnatisect, 5—16 cm long; segments spinous-incised or undivided. Heads about 1,8 mm long or including the long spines that project from some of them about $2^3/_8$ cm long, crowded in clusters of 6—9 cm diameter. Outer setaceous bracts silky, 5—8 mm long, nearly white. Inner involucral bracts about 17, narrowly spathulate or sublinear, acuminate; sometimes one or two project far beyond the others in a strong spine; the innermost connate at least half way. Achenes narrowly turbinate, densely setulose (in the spine-bearing heads). Pappus of setaceous ciliate scales connate nearly the whole way up. — Flow. February to March.

M. ma. M. p. D. l. D. i. D. a. sept. D. a. mer. Common in all the Wadies.

Local name: shôk-el-gemel (Forsk.); generally; khashîr.

Extends to Morocco, Syria, Arabia and Tropical Africa.

590. (50.) **Carlina** Linn.

Heads homogamous, many- and equal-flowered. Involucre in several rows, the outer scales leaf-like, the inner ones scarious, frequently ray-like. Chaff of the receptacle many-cleft. Flowers perfect. Filaments free, appendages of the anthers feathery. Achenes terete-obcuneate, silky, with hilum at the base. Pappus consisting of 1—2 rows of small pales, parted into 3—4, feathery fibres — Monocarpic or perennial herbs, with spiny, pinnatifid or partite leaves and involucre.

A small European and Asiatic genus, easily distinguished by the involucral bracts.

1421. **Carlina involucrata** Poir. Voy. II (1805), p. 234. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 93 no. 593. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Carlina corymbosa S. involucrata Boiss. Flor. Or. III, p. 449. — A biennial plant 20—80 cm high or sometimes somewhat more, stems simple or corymbose. Leaves mostly glabrescent, coriaceous, lanceolate to oblong-lanceolate, recurved; the upper ones falling ofter flowering. Heads 3—5 cm in diameter; outer scales of the involucre linear-lanceolate, with 1—2 spines on either side, twice to twice and a half as long as the head. Flow. March.

M. ma. Mariut; Behig.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Sicily and Syria.

var. **mareotica** Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 93 no. 593. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 180. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — A small plant, only up to 8—10 cm or less; the lower leaves like the scales of the involucre lanate; spines not so long as in the type. — Flow. March.

M. ma. Marmarica: Matruqa; Mariut; old quarries near Behig.

Only known from Egypt.

var. **Letourneuxii** Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 93 no. 593. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Indument arachnoid; spines rigid; intermediate scales of the involucre attenuate into spines. — Flow. March.

M. ma. Abusîr; Mariut.

Local name: grinsa; grinse (Schweinfurth); ssabtha (?).

Only known from Egypt.

591. (51.) **Atractylis** Linn.

Heads homogamous, many-flowered. Involucre double, the inner scales in many rows, not rayed. Receptacle chaffy, pales many-cleft. Flowers perfect, uniform, or the outer ones radiate, strap-shaped. Filaments free, with bearded appendages. Style with 2, very short, convergent lobes. Achenes terete, silky-hairy, hilum at the base. Pappus in 1 row of simple, feathery pales united at the base. — Annual or perennial herbs, with aspect of Carlina.

A small genus widely spread in the Mediterranean region.

A. Outer flowers ligulate, radiate . . . . . 1. **A. flava.**
B. Flowers all tubular.
I. Heads ovate . . . . . 2. **A. Mernephthae.**
II. Heads oblong . . . . . 3. **A. cancellata.**

1422. (1.) **Atractylis flava** Desf. Flor. Atlant. II (1798), p. 254. — Boiss. Flor. Or. III, p. 452. — Coss. and Kral. in Soc. Bot. Franc. IV, p. 360. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 93 no. 594. — Aschers. Flor. Rhinocol., p. 799 no. 154. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 181. — A perennial plant 10—20 cm high or rarely somewhat more, appressed-wolly, branching from the neck, branches ascending or diffuse. Leaves leathery, lanceolate-linear, sinuate-lobed, prickly. Heads terminal, solitary, 2 cm long, ovate; leaves of the outer involucre twice as long as the head; scales of the inner involucre woolly, broad ovate to linear-lanceolate, abruptly prickly-tipped; flowerets yellow, the rays one-half longer than the others. — Flow. February to April.

M. ma. Marmarica: Matruqa; Dakalla; Mariut; Behig; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta; Sheykh Djubaîah; Bassa; Sath; el-'Arîsh. — **D. l. D. i. D. a. sept.** Not rare in the desert.

Local name: khosherûf (Schweinfurth); freykh (Ascherson); dobbâri (Schweinfurth).

Also known from Tunisia, Tripolitania and Arabia Petraea.

var. **citrina** Muschler comb. nov. — Atractylis flava var. glabrescens. Boiss. Flor. Or. III (1875), p. 452. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 93 no. 594. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Atractylis citrina Coss. and Kral. in Bull. Soc. Bot. Franc. IV, (1857), p. 361. — Leaves glabrescent or glabrous; outer scales of the involucre narrower. — Flow. March to April.

D. a. sept. "Deserta Thebaidis inferioris" (Boiss. Flor. Or. III, p. 452).

Also known from Morocco, Algeria, Tunisia, Tripolitania and Arabi Petraea.

1423. (2.) **Atractylis Mernephthae** Aschers. Letourn. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 94 no. 595. — Atractylis serratuloides var. Letourneux exsicc. not of Sieb. — An annual plant, 10—20 cm high; stems divaricately branched, branches slender, gracious, in the upper part araneose, in the other parts glabrescent; leaves ovate-oblong in outline, the upper ones larger than the others forming a supplementary involucre, pubescent, subpinnatifid or entire, toothed, segment 1—3 on either side, teeth spinulous, somewhat lanate at the base; scales of the involucre pilose-pubescent at the back, narrowed into a fine spine at the top; the lower ones ovate, the upper ones lanceolate, all membranously margined, broadly purplish. — Flow. March to April.

D. a. sept. Between Suez and Adjerud (Letourneux).

Only known from Egypt.

1424. (3.) **Atractylis cancellata** L. Spec. Plant. I (1753), p. 452. — Boiss. Flor. Or. III, p. 452. — Rchbch. Ic. XV, tab. 14. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 94 no. 596. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 182. — Atractylis caespitosa Viv. Flor. Libyc., p. 52 not of Desf. — Acarna cancellata All. Flor. Pedem. I, p. 153. — Sibth. and Smith Flor. graec., tab. 839. — An annual plant, 10—20 cm high, or sometimes somewhat more, appressed-cobwebby; stems simple or branching from the base, slender, corymbose or monocephalous. Leaves linear, ciliate-prickly. Heads ovate, 1,5 cm long; outer scales of the involucre in about 1 row, linear, pectinate-prickly, a little longer than the oblong to lanceolate-acuminate, membranous, inner scales; flowers purple; pappus once and a half as long as the achene. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara, Abukîr. — **M. p.** Ramlet-el-Ekhfên. — **D. i.** Wady-el-ʿArîsh.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Southern Europe and Arabia Petraea.

592. (52.) **Carduus** Linn.

Capitula heterogamous, flowers equal and hermaphrodite (or all 1-sexual in dioecious species). Involucre globose or ovoid, of numerous ∞-seriate imbricate more or less spinescent bracts. Receptacle densely setose. Pappus of numerous pauci- or multi-seriate simple serrulate or barbellate setae, cohering at the base in a narrow annulus, at length separating from the achene. — Erect

or more rarely acaulescent herbs with alternate often decurrent usually spinescent pinnately lobed or sinuate leaves, and terminal solitary or congested often large purple rose or white capitula.

A large genus chiefly of the N. temperate zone of the Old World.

A. Heads 2—5, sessile . . . . . 1. **C. pycnocephalus.**
B. Heads solitary, long peduncled . . . . . 2. **C. argentatus.**

1425. (1.) **Carduus pycnocephalus** L. Spec. Plant. I (1753), p. 1151. — Boiss. Flor. Or. III, p. 520. — Rchbch. Ic. XV, tab. 133 fig. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 94 no. 597. — Aschers. Flor. Rhinocol., p. 799 no. 156. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 183. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Jacq. Hort. Vindob. I, p. 17 tab. 44. — An annual plant, 30 cm to 1 m, or sometimes somewhat more; stem prickly and prickly-winged. Leaves oblong in outline, pinnatifid into oblong, angular, prickly-toothed lobes. Heads 2—5, crowded, sessile at the tip of a winged peduncle; middle and inner scales of the involucre lanceolate, the inner ones about as long as the flowerets boss of the achenes on a short and thick stalk. — Flow. March; to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta; Tawîl-es-sakham; Henwa; el-ʿArîsh. — **D. i.** Desert-el-Tîh.

Local name: lisân-el-kelb (Ascherson).

Also known from the other parts of the Mediterranean region

1426. (2.) **Carduus argentatus** L. Mant. (1771), p. 280. — Boiss. Flor. Or. III, p. 522. — Jacq. Hort. Vindob. II, tab. 192. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 598. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — An annual plant, 30—50 cm high or sometimes somewhat more; stem and branches slender, wings narrow, sinuate-prickly. Leaves tender, pinnatifid-prickly. Heads solitary, on long, white, naked peduncles; intermediate scales of the involucre lanceolate-subulate, inner ones broad-lanceolate, acute, not as long as the flowers; boss of the achenes on a slender stalk. — Flow. March to April.

D. i. Sâlihîya; Ismailia. — **D. a. sept.** Between Cairo and Suez in the deserts.

Local name: shôk ʾantâr.

Also known from Greece, Palestine, Syria and Asia Minor.

593. (53.) **Cirsium** Linn.

Heads heterogamous; flowers all tubular. Involucre imbricated, scales terminating in spines. Receptacle chaffy. Marginal flowers

sterile, central ones perfect. Filaments hirsute, free, anthers almost without appendages. Achenes obliquely obovate, compressed, smooth, hilum basilar, oblique, chink-like, apex with an obsolete boss. Pappus feathery, in several rows of bristles united in a ring at base. — Spiny herbs. — *Notobasis* Cass.

The largest and widest-spread genus among Cynaroideae, for although the species are chiefly European and Asiatic, yet there are also several from North America, and the common ones accommodate themselves readily even to a tropical climate.

1427. **Cirsium syriacum** (L.) Gaertn. De Fructib. II (1791), p. 383 tab. 163 fig. 2. — Notobasis syriaca Cass. in Dict. Scienc. Natur. XXV, p. 225. — Boiss. Flor. Or. III, p. 553. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 599. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 655 no. 184. — Cnicus syriacus Willd. Spec. Plant. III, p. 1683. — Sibth. and Smith Flor. graec., tab. 831. — Carduus syriacus L. Spec. Plant. I, p. 1153. — Cirsium bracteatum Link in Linnaea IX, p. 580. — An annual plant, 30 cm to 1 m high or rarely more; stem erect, branching above. Leaves glabrous at the upper surface, pubescent at the lower one, oblong, sinuate-lobed, lobes short, spiny-toothed; floral leaves with little parenchyma, pinnatipartite into stout, branching, narrow-margined spines. Heads ovate, 1,5—2,5 cm long; scales of the involucre lanceolate, appressed, somewhat spreading at the tip. — Flow. March to April.

M. ma. Marmarica: Matruqa; old quarries near Behig. — **N. d. N. f. N. v. D. a. sept.** Often in sandy and waste places.

Local name: shôk (Del.); bawâl (Schweinfurth); shôk 'antâr (Ascherson); shôk hannâsh (Schweinfurth); generally: leklâkh.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Italy, Greece and Syria.

594. (54.) **Cynara** Linn.

Heads many-flowered, flowers all perfect. Scales of the involucre imbricated, leathery, ending in a spine. Receptacle mostly fleshy, honey-combed, fringed with bristles. Filaments free, terminal appendages of the anthers obtuse. Achenes obovate-oblong, somewhat 4-angled, hilum at the base, apex scarcely margined. Pappus in many rows, feathery, united in a deciduous ring at the base. — Spiny, perennial herbs.

A widely distributed genus, cultivated everywhere.

A. Receptacle not fleshy.
  I. Flowers blue . . . . . 1. **C. Cardunculus.**
  II. Flowers white . . . . . 2. **C. Sibthorpiana.**
B. Receptacle fleshy . . . . . 3. **C. Scolymus.**

1428. (1.) **Cynara Cardunculus** L. Spec. Plant. I (1753), p. 1159. — Boiss. Flor. III, p. 557. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 95 no. 601. — Cynara horrida Sibth. and Sm. Flor. graec., tab. 834. — Guss. Synops. II, p. 436. — Cynara spinosissima Presl Del. Prag., p. 109. — A perennial plant, 30—80 cm high, or sometimes somewhat more; stems fleshy sulcate-striate, canescent 1—5-cephalous, corymbose. Leaves glabrescent on the upper, canescent on the under surface, oblong in outline, pinnatilobed in oblong segments; capitula large, solitary, globose; scales of the involucre coriaceous broadly oblong-triangular, the lower ones abbreviate; the intermediate ones narrowed into an short acumen, the lowest ones scarious; flowers bluish; achenes oblong-subcompressed, obscurely tetragonous. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. a. sept. Cultivated and rarely subspontaneous.

Also known from other parts of the Mediterranean region.

1429. (2.) **Cynara Sibthorpiana** Boiss. and Heldr. Diagnos. Plant. Or., Ser. I fasc. X (1849), p. 94. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 95 no. 602. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 185. — Boiss. Flor. Or. III, p. 557. — Ic. Raulin Cret., tab. 15. — Cynara humilis Sibth. and Smith Flor. graec. IX, p. 25 tab. 835 not of Linn. — A perennial plant, 20—80 cm high; stems small, araneous-canescent, monocephalous; basiliar leaves large as long as the stems, spinulous-petioled, glabrescent on the upper surface, on the under surface canescent, oblong, pinnatipartite in sinuate-oblong shortly spinose segments; stem-leaves few smaller; head very large; scales of the involucre subtruncate at the base, coriaceous, glabrous, shortly narrowed into spines; the intermediate convex, canaliculate as long as the florets, lanceolate, scarious; flowers white. — Flow. March to April.

M. ma. Mariut; Alexandria.

Local name: kharshuf.

Also known from Greece and Arabia Petraea.

1430. (3.) **Cynara Scolymus** L. Spec. Plant. I (1753), p. 827. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 95 no. 601. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Stems fleshy, striate, corymbosely branched above; leaves very ample, bipinnatifid, the lobes acute but scarcely spinose, tomentose at least beneath; heads 6 cm or more wide; outer scales of the involucre with thickened obtuse or acute tips; the inner bracts with scarious tips; flowers blue. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D.-a. sept. Cultivated everywhere and often subspontaneous.

Local name: kharshûf.

Also known from the other parts of the Mediterranean region.

595. (55.) **Silybum** Gaertn.

Heads many-flowered; flowerets equal, homogamous. Involucre imbricated, the outer scales spiny-tipped, with spinulose-ciliate margins. Receptacle fleshy, fringed with bristles. Filaments papillose, monadelphous; anthers with short appendages. Achenes obovate laterally compressed, smooth, with hilum at the base, and elevated margin at the apex. Pappus consisting of several rows of scabrous bristles united at the base into a deciduous ring. — Spiny herbs with aspect of Carduus.

A small genus widely distributed in the Orient.

1431. **Silybum Marianum** (L.) Gaertn. De Fruct. II (1791) tab. 102. — Boiss. Flor. Or. III, p. 556. — Rchbch. Ic. XVI tab. 151. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 600. — A biennial plant 1—2 m high, glabrous, pale green; stem simple or slightly branching. Leaves large, mottled with white, pinnatifid into ovate-triangular, sinuate-toothed, spiny lobes. Heads globular 6—10 cm broad, concave at the base; outer scales of the involucre oblong at the base, broadening into an ovate, prickly-ciliate, margined appendage which tapers abruptly into a long, stiff spine; inner scales lanceolate, entire. — Flow. March to April.

N. d. Damanhur; Fûa; Er-Rahmânîya; Tanta; Shirbîn; Mansura; Zifta; Zaqaziq; Qalyub; Cairo. — **N. f.** Medînet-el-Fayûm; Kôm-Fâris; Senhur; Tamîa; Kafr Mukfût; Fidemîn; Gharaq; Matar Târes. — **N. v.** Kafr-el-Ayyât; Beni-Suêf; Feshn; Minia; Siut; Ekhmim; Girga; Farshût; Luksor; Esne; Aswân. — **O.** Little Oasis; Dakhel; Great Oasis.

Local name: shôk-el-ghazâl (Ascherson); lekhlîkh (Schweinfurth).

Also known from Greece, Syria and Palestine, Mesopotania and Persia.

var. **pygmaeum** (Cass.) Boiss. Flor. Or. III (1875), p. 556. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 600. — Silybum pygmaeum Cass. Dict. Scienc. Natur. L, p. 469. — Stem 30—40 cm high. — Flow. March to April.

N. d. Mansura.

Also known from Greece.

596. (56.) **Onopordon** Linn.

Heads homogamous, many-and equal-flowered. Scales of the involucre leathery, entire, spiny-tipped. Receptacle fleshy, honeycombed, cells membranous, sinuate-toothed. Corolla ringent. Filaments free, glabrous, anthers 2-lobed at the base, tipped with an awl-shaped appendage. Achenes ovate, 4-angled, somewhat compressed, hilum at the base. Pappus caducous, bristles scabrous or feathery, united at the base in a ring. — Tall, spiny herbs, usually with large heads.

A small genus widely distributed in the Mediterranean region.

A. Stems with prickly wings . . . . . 1. **O. Sibthorpianum.**
B. Stems with spiny wings . . . . . 2. **O. ambiguum.**

1432. **Onopordon Sibthorpianum** Boiss. and Heldr. ap. Heldr. Flor. graec. exsicc. no. 1917. — Boiss. Flor. Or. III (1875), p. 561. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 603. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — Aschers. Flor. Rhinocol., p. 799 no. 157. — Onopordon macranthum Sibth. and Smith Flor. graec. IX, p. 23 tab. 832 not of Schousb. — A biennial herb, 1 m high or sometimes somewhat more, more or less woolly-canescent; stem and branches with very narrow, spiny wings. Root-leaves oblong-lanceolate, pinnatifid or parted into spiny-tipped lobes; stem-leaves smaller, decurrent. Heads globular, 4—8 cm in diameter, truncate or concave at the base; spines of the involucre-scales much longer than the apressed, oblong base, the outer spreading or reflexed. — Flow. March to April.

M. ma. Behig; (Muschler).

Also known from Greece and Algeria.

var. **alexandrinum** Boiss. Flor. Or. III (1875), p. 562. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 603. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 185. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — Onopordon alexandrinum Boiss. Diagn. Plant. Or., Ser. I fasc. X p. 93. — Onopordon carduiforme Boiss. Diagn. Plant. Or., Ser. I fasc. X p. 92. — Less woolly, cobwebby, greyish. Leaves sometimes pinnately divided. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Mariut; Montaza; Alexandria-West and -East. — **M. p.** El-ʿArîsh.

Local name: shôk-el-hannash (Schweinfurth).

Also known from Palestine.

1433. (2.) **Onopordon ambiguum** Fres. in Mus. Senckenberg. II. (1835), p. 85. — Boiss. Flor. Or. III, p. 562. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — A biennial plant, 30—60 cm

high or sometimes somewhat more, snowy-woolly; stem with scarcely lobed, prickly wings. Leaves 5—10 cm long, 3—5 cm broad, scarcely lobed, serrate, armed with numerous, slender, yellow prickles. Heads medium; scales of the involucre ovate at the apressed base; spines long, awl-shaped. — Flow. March to April.

D. a. sept. Wady-Omm-Ruthi in the Southern Galala (Schweinfurth).

Also known from Arabia Petraea and Palestine.

597. (57.) **Zoegea** Linn.

Heads heterogamous. Involucre imbricated, scales in several rows, membranous, the outer one with a pectinate-fringed appendage. Receptacle bristly. Anthers with short appendages at the base, filaments glabrous. Achenes 3-furrowed at the apex, hilum lateral, deep. Pappus persistent, rigid, of 2 forms, the outer composed of several rows of bristles, the inner of one row of pales or bristles, shorter. — Annual herbs, distinguished from Centaurea by the achenes.

A small genus in the Orient.

1434. **Zoegea purpurea** Fres. in Mus. Senckenberg II (1835), p. 86. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 614. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Boiss. Flor. Or. III, p. 698. — Zoegea aristata DC. Prodrom. VI, p. 562. — An annual plant, 20 to 30 cm high, or sometimes somewhat more; stem erect, forked; branches slender. Lower leaves narrow-oblong, undivided or pinnatipartite, upper narrow-linear. Heads minute, globular, with slender peduncles; ray flowerets flesh-colored to white; all the bristles of the pappus white, slender, and entire. — Flow. March to April.

D. i. Desert-et-Tih. — **D. a. sept.** Galala (Schweinfurth).

Also known from Arabia Petraea, Persia and Afghanistan.

598. (58.) **Crupina** Cass.

Heads heterogamous, few-flowered. Involucre in few rows, scales scarious. Receptacle bristly. Anthers short-caudate at the base. Style 2-lobed. Achenes with hilum at the base, and a crenulate cup at the apex. Pappus persistent, the outer in several rows of rigid, barbellate bristles, the inner one in 1 row of 5—10, broad, short pales. — Annual herbs.

A small genus widely distributed in the Mediterranean region.

1435. **Crupina crupinastrum** Vis. Flor. Dalmat. II (1847), p. 42 tab. 51 fig. 3. — Boiss. Flor. Or. III, p. 699. — Rchbch. Ic. XV,

tab. 15 fig. 13 and 14 and tab. 18 fig. II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 616. — Crupinus vulgaris β crupinastrum Batt. and Trab. Flor. anal. and syn. Alg. and Tun., p. 194. — Centaurea crupinastrum Moris Enum. Sem. Hort. Taur. (1842) and Flor. Sardoa. II, p. 443. — Crupina Morisii Boreau Fl. Centr., ed. 2 Vol. II p. 292. — An annual plant, 30—60 cm high, scabrous; stem erect, dichotomously branched. Lower leaves pinnatiparted into oblong dentate lobes, upper one into linear, denticulate lobes. Heads oblong, 1,4 cm long, 9—15-flowered; flowers purple; inner pappus of 5, oblong pales, denticulate at the tip. — Flow. March to April.

M. ma. Mariut; Alexandria-West and -East.

Also known from Algeria, Tunisia, Tripolitania, Spain, Italy, Greece, Russia, Syria and Palestine.

599. (59.) **Centaurea** Linn.

Involucre globular or ovoid, the bracts imbricate, numerous, usually ending either in a prickle or in a fringed or toothed appendage. Receptacle bearing numerous bristles between the flowers. Flowers all tubular and 5-lobed, the outer row often larger and neuter. Anthers tailed. Style-branches linear, often cohering, thickened at the base. Achenes glabrous, usually obliquely or laterally attached at the base. Pappus short, of simple bristles or scales, sometimes very short, or rarely wholly wanting. — Erect or prostrate herbs, usually rigid. Leaves alternate, entire or pinnatifid, rarely prickly. Flower-heads large and solitary, or smaller and paniculate. Flowers purple blue or yellow.

The species are very numerous in the Mediterranean and Caucasian regions of the northern hemisphere, with a very few American species, and some of the common ones spread with civilisation over various parts of the globe; some are indigenous in Egypt.

A. Scales of the involucre membranously margined, with membranous not spiny appendages *(Amberboa)*.
   - I. Papillose plants; flowers all pink . . . . . 1. **C. Lippii.**
   - II. Villous or glabrescent plants; marginal florewerets blue; disk-flowers golden . . . . . 2. **C. crupinoides.**

B. Scales of the involucre membranously margined, with a short spinous appendix.
   - I. Pappus easily deciduous *(Aegialophila)* . . . 3. **C. pumila.**
   - II. Pappus persistent *(Microlonchus)* . . . . . 4. **C. Duriaei.**

C. Scales of the involucre membranously margined, with membranous pinnate appendages.

I. Heads without an outer involucre of leaves *(Cyanus)* . . . . . 5. **C. depressa.**
II. Heads with an outer involucre of leaves *(Melanoloma)* . . . . . 6. **C. pullata.**

D. Scales of the involucre membranously-margined, with pinnate-spinous appendages.
I. Pappus equal, persistent *(Phaeopappus)* . . . 7. **C. scoparia.**
II. Pappus unequal, double, sometimes deciduous.
a) Side-cilies or-spines pinnately disposed.
1. Terminal-spine not indurated *(Acrocentron)* . . . . . 8. **C. eryngioides.**
2. Terminal-spine indurated.
α) Terminal-spine only at the base with some very short side-spines, leaves decurrent *(Calcitrapa).*
* Flowers purple . . . . . 9. **C. Calcitrapa.**
** Flowers pink . . . . . 10. **C. furfuracea.**
*** Flowers yellow.
† Upper leaves auricled . . . 11. **C. alexandrina.**
†† Upper leaves not auricled . 12. **C. pallescens.**
β) Terminal-spine all over beset with side-spines, only the upper leaves decurrent *(Mesocentron).*
* Flowers yellow . . . . . 13. **C. solstitialis.**
** Flowers pale-purple . . . . . 14. **C. aegyptiaca.**
b) Side-spines palmately disposed.
1. Annual herbs *(Seridioides)* . . . . . 15. **C. glomerata.**
2. Perennial herbs *(Seridia)* . . . . . 16. **C. dimorpha.**

1436. (1.) **Centaurea Lippii** L. Spec. Plant. I (1753), p. 1286. — Schh. Handb., tab. 261. — Amberboa Lippii DC. Prodrom. VI, p. 559 not of Willk. and Lange. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 605. — Boiss. Flor. Or. III, p. 606. — Aschers. Flor. Rhinocol., p. 799 no. 158. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Volutarella Lippii Cass. ap. Benth. and Hook. Gen. Plant. II, p. 476. — An annual plant, 15—25 cm high or sometimes somewhat more, papillose; stems slender, erect or diffusse, stiff. Lower leaves petioled, lyrate or pinnatisect into ovate or oblong, dentate lobes; upper leaves sessile, pinnatipartite into linear lobes. Heads ovate, 8 mm long, long-peduncled; involucre villous, scales tapering into a lanceolate, scarious, erect tip; flowers all pink. — Flow. February to May.

D. l. Siut. — **D. i.** Wady-el-ʿArîsh. — **D. a. sept. D. a. mer.** Common in the Wadies on calcarious ground.

Local name: kheyzarân (Forsk., Del.); rumey (Wilkinson); ahna (Schweinfurth).

Also known from Morocco, Algeria, Tunisia, Tripolitania, Spain, Arabia Petraea and Persia.

1437. (2.) **Centaurea crupinoides** Desf. Flor. Atlant. II (1798), p. 293. — Amberboa crupinoides DC. Prodrom. VI, p. 557. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 606. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 187. — Boiss. Flor. Or. III, p. 606. — Lacellia libyca Viv. Flor. Libyc., p. 58 tab. 22 fig. 2. — Volutarella bicolor Cass. ap. Benth. and Hook. Gen. Plant. II, p. 476. — Amberboa sinaica DC. Prodrom. VI, p. 559 (only a form whith larger segments of the leaves). — An annual herb, 20—40 cm high, or sometimes somewhat more, villous or glabrescent; stems slender, forked. Lower leaves nearly sessile, pinnatipartite into linear or oblong, usually toothed lobes; upper ones sessile, pinnatipartite. Heads ovate oblong, 1 cm long; scales of the involucre 3—5-lined, acute, with blackish tip; marginal flowerets blue, disk-flowers golden. — Flow. March and April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **D. a. sept.** Wady Dukhân.

Also known from Morocco, Algeria, Tunisia, Tripolitania, Arabia and Palestine.

1438. (3.) **Centaurea pumila** L. Amoen. Acad. IV (1764), p. 292. — Icon. Vent. Malm., tab. 9. — Aegialophila pumila Boiss. Diagnos. Plant. Or., Ser. I fasc. X p. 105. — Flor. Or. III, p. 703. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 618. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 191. — Centaurea mucronata Forsk. Flor. aeg.-arab., p. 151. — A perennial herb, 5—15 cm high, appressed araneous-canescent; root fleshy cylindrical; stem fleshy dichotomously branched, branches very short. Leaves petioled often longer than the capitula pinnatisect, segments unequal ovate, oblong and linear; heads large ovate, aggregate, subsessile; scales of the involucre glabrous coriaceous yellow, ovate small white-membranous, minutely crose-denticulate narrowed into a spine; spines erect often as long as the scales; flowers purplish; setae of the pappus white, the outer ones thrice as long as the achenes; achenes sericeous. — Flow. March to April.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Behig; Montaza; Alexandria-West and -East.

Only known from Egypt.

1439. (4.) **Centaurea Duriaei** (Spach) Muschler comb. nov. — Microlonchus Duriaei Spach in Ann. scienc. Natur., sér. III Vol. IV (1845), p. 166. — Boiss. Flor. Or. III, p. 700. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 617. — Willk. and Lange Prodrom. Hisp. II, p. 169. — Microlonchus tenellus Batt. and Trab. Flor. Alg. I, p. 505. — An annual plant, in the lower part with crispulous hairs; stem long and somewhat branched. The lower leaves petioled pinnatifid vel lyrate; the upper ones small linear, entire. Heads long pedunculate, ovate-conical; scales of the involucre glabrous, coriaceous, smooth ovate-triangular and oblong, narrowed at the apex into a fine spine; flowers not radiate longer than the involucre; achenes subcompressed transverse rugulosed; pappus as long as the achenes or shorter. — Flow. March to April.

M. ma. Alexandria; Mariut; Mex.

Also known from Spain, Italy, Greece, Algeria, Tunisia and Tripolitania.

1440. (5.) **Centaurea depressa** M. B. Flor. Taur. Caucas. II (1856), p. 346. — Boiss. Flor. Or. III, p. 635. — Centaurea anatolica Griseb. Spicil. II, p. 234. — An annual plant, 40—60 cm high or sometimes somewhat more, cobwebby-canescent; stems simple or branching from the neck. Lower leaves petioled, oblong, entire or lyrate-pinnatifid, the upper ones linear-lanceolate, mucronate. Heads ovate, 2—2,5 cm long; margin of the involucre-scales scarious, white or tawny, with white, lanceolate teeth almost as long as breadth of the scale; intermediate row of the pappus rather longer than the achene. — Flow. March to April.

M. ma. Near Abd-el-Qadr near Mariut in waste fields.

Also known from Greece, Palestine and Syria.

1441. (6.) **Centaurea pullata** L. Spec. Plant. I (1753), p. 1288. — Melanoloma pullata Cass. in Dict. Scienc. Natur. XXIX, p. 472. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 619. — Rchbch. Plant. crit., tab. 373. — An annual plant, greenish shortly pubescent; stems ascendent or decumbent, leafy, simple often very short. Leaves lyrate petioled, the lateral segments small, oblong the terminal one large, obtuse; the upper leaves like an involucre disposed at the heads; scales of the involucre glabrous, greenish, triangular, scarious at the margin toothed, at the apex narrowed into a pinnatisect pale yellow spine; outer flowers rose-coloured achenes hirtulous half as long as the pappus. — Flow. March to April.

M. ma. Alexandria, in deep sandy places.

Also known from Spain, France and some other parts of North Africa.

1442. (7). **Centaurea scoparia** DC. Prodrom. VI (1837) p. 596. — Phaeopappus scoparius Boiss. Flor. Or. III, p. 602. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 604. — A perennial often shrubby plant, 20—60 cm high or more. Woody at the base; stems forked; branches interlocked, 1-headed. Lower leaves pinnatilobed, intermediate undivided, upper ones small, scale-like. Heads oblong, peduncled; scales of the involucre yellow, tipped with a spreading spine longer than the scale, with two prickles at the base; pappus white, about twice as long as the achene. — Flow. March to April.

D. a. sept. Suez. — **D. a. mer.** (Without locality Acerbi.)

Local name: berqân; burqân; (Wilkinson, Schweinfurth).

Also known from Arabia Petraea and Tropical Arabia.

1443. (8.) **Centaurea eryngioides** Lam. Dict. I, p. 675. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 607. — Sickenberg. Contrib. Flor. d'Eg., p. 248. — Boiss. Flor. Or. III, p. 659. — Carduus eryngioides P. Alpin Exot, p. 158. — A perennial plant, 30 to 50 cm high, or sometimes somewhat more, crisp-puberulent, green, coarse-pubescent at the neck; stems rigid, thickish, usually branching from the base. Leaves lyrate-pinnatipartite into small, obtuse lobes, the terminal lobe ovate-oblong. Heads globular, 2 cm in diameter, with long, stout, nearly naked peduncles; scales of the involucre glabrescent, pale, broad-ovate, margin pectinate-fringed with white prickles, terminal spine stout, 1—3,5 cm long; flowerets pink. — Flow. March to April.

D. a. sept. Northern and Southern Galala.

Local name: yamrâr (Wilkinson); daqan-el-bedan (Schweinfurth).

Also known from Arabia Petraea, Palestine and Syria.

1444. (9.) **Centaurea Calcitrapa** L. Spec. Plant. I (1753), p. 1297. — Boiss. Flor. Or. III, p. 689. — Rchbch. Ic. XV, tab. 67. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 611. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — A biennial plant, 40—60 cm high or more, papillose; stem erect, forked, branching from the base. Root-leaves, pinnatipartite into linear, dentate lobes; stem-leaves sessile, lobes few, the uppermost leaves undivided. Heads lateral and terminal, solitary, ovate, 1 cm long; prickles of the involucre 5—7 at each side of the terminal spine, short; flowerets purple; achenes bald. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. a. sept. Common throughout.

Local name: shôk; murreyr; murrar (Schweinfurth).

Also known from Europe, Canarian Islands and some parts of the Sahara region.

1445. (10.) **Centaurea furfuracea** Coss. and Dur. in Bull. Soc, Bot. Franc. IV (1857), p. 363. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 609. — Coss. Voy. Bot. Algér. in Ann. Scienc. Nat., sér. 4 Vol. IV p. 284. — An annual plant, branching from the base, branches short more or less elongate, decumbent-diffuse, simple, sulcate-striate, pubescent-furfuraceous, leafy. Leaves not decurrent, pubescent, crispulous, the lower ones petioled, pinnatisect or pinnatipartite, segments often unequal, the terminal large, oblong or ovate, entire or sinuate-dentate, teeth callous-mucrunolate; the upper ones oblong often like the bracts. Heads at the apex of the branches solitary, medium-sized; involucre ovoid; scales of the involucre sparingly arachnoid-pubescent, imbricate, coriaceous, narrowly scarious-margined; the outer and intermediate ones narrowed into an appendix, terminal spine much longer than the other: flowers pale pink or yellow; achenes minute, terete, subcompressed smooth, glabrous, brownish; setae of the pappus white as long as the achene. — Flow. March to April.

D. l. Between Alexandria and Siwa.

Also known from Tunisia.

1446. (11.) **Centaurea alexandrina** Del. Illustr. Flor. d'Eg (1813), p. 373 tab. 49 fig. 3. — Boiss. Flor. Or. III, p. 689. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 612. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 189. — A biennial on often perennial plant, papillous-canescent; stems erect, sometimes very short monocephalous often divaricately 3—4-branched. Basilar leaves rosulate flaccid pinnately or subpinnately cut into unequal oblong or ovate, obtuse minutely mucronate-toothed segments; the upper ones and those of the stems gradually diminute sinuate-lobed, auriculate at the base; capitula 1—3, shortly pedunculated, subrotundate; scales of the involucre glabrous cariaceous narrowed at the apex into a white spine longer than the flowerets, the inner ones without spines scarious at the apex; flowers yellow-brownish; achenes small white-greenish. — — Flow. March to April.

M. ma. Marmarica: Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr;

Only known from Egypt.

1447. (12.) **Centaurea pallescens** Del. Illustr. Flor. d'Eg. (1813), p. 370 tab. 49 fig. 1. — Boiss. Flor. Or. III, p. 691. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 613. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — Sickenberg. Contrib. Flor. d'Eg., p. 249 (incl. var. gracilis Sickenberg.). — Aschers. Flor. Rhinocol.,

p. 799 no. 159. — A biennial plant, 40—60 cm high or sometimes somewhat more, pruinose, diffusely forked. Root-leaves rosetted, pinnatipartite or lyrate; upper leaves sessile, oblong to linear, toothed. Heads ovate, 1 cm long; terminal spines of the involucre white, terete, or flat above, with 2—3 prickles on each side at the base; flowers pale-yellow; pappus as long as the achene. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. l. D. i. D. a. sept. Common in sandy places throughout.

Local name: amrûr; harrâr (Schweinfurth); murrâr (Ascherson); generally: murreyr. *nub.* kenissa kul.

Also known from Arabia Petraea and Syria.

var. **brevicaulis** (DC.) Boiss. Flor. Or. III (1875), p. 691. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 613. — Centaurea pallescens var. gracilis Sickenberg. Contrib. Flor. d'Eg., p. 249 partly. — Centaurea Calcitrapa var. brevicaulis DC. Prodrom. VI, p. 598. — Centaurea brevicaulis Boiss. Diagnos. Plant. Or., Ser. I fasc. X p. 120. — Stems very short often 0; spines of the involucre longer and more fleshy. — Flow. March to April.

D. l. D. a. sept. Common in deep sandy places.

Local name: murreyr.

Only known from Egypt.

1448. (13.) **Centaurea solstitialis** L. Spec. Plant. I (1753), p. 1297. — Boiss. Flor. Or. III, p. 685. — Sibth. and Smith Flor. graec., tab. 908. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — A annual plant, 30 cm to 1 m high, appressed-cobwebby, canescent; stem and branches rigid, winged, the latter spreading. Lower leaves lyrate, stem-leaves linear, entire, decurrent into entire wings as long as the internodes. Heads terminal, solitary, ovate, 1—1,5 cm long; lower scales of the involucre terminating in 3, short prickles, the intermediate ones in a slender, sharp spine as long as the head or twice as long, with 2 prickles on each side at the base; flowers yellow. — Flow. March to April.

M. ma. Alexandria.

Also known from Greece, Caucasia, Arabia Petraea, Syria and Mesopotamia.

1449. (14.) **Centaurea aegyptiaca** L. Mant. I (1771), p. 118. — Boiss. Flor. Or. III, p. 687. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 610. — Del. Illustr. Flor. d'Eg., tab. 49 fig. 2. — Centaurea cancellata Sieb. in Spr. Syst. Plant. VI, p. 406. — Centaurea eriophora Forsk. Flor. aeg.-arab., p. 145 not of Linn. — A biennial plant, 15—20 cm high or more, densely crisp-papillose, canescent, branching

from the base; branches leafy, forked, proliferous, 1—3-headed. Leaves linear-oblong, pinnatipartite or cut into oblong to linear, toothed or lobed segments, the upper ones nearly entire, minutely auricled at the base. Heads ovate-oblong, 1,5 cm long, with thickish, short peduncles, bracted by the upper leaves; spines of the involucre curved, 4—5 times as long as the scales, with two prickles on either side of the lower half; flowers pale-purple. — Flow. March to April.

D. l. D. a. sept. Common in deep sand and on calcarious ground.

Local name: yamrûr; yamrâr (Forsk.).

Also known from Arabia Petraea, Palestine and Syria.

1450. (15.) **Centaurea glomerata** Vahl Symb. II (1791), p. 94. — Boiss. Flor. Or. III, p. 679. — Coss. Illustr. Flor. Atlant. II, p. 65 tab. 138 fig. 12—15. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 95 no. 608. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 188. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Centaurea prolifera Vent. Descr. Jard. Cels., tab. 16. — Centaurea straminea Willd. Hort. Berol., tab. 26. — An annual plant without stems or proliferous and divaricately branched; branches fleshy decumbent. Leaves beset with minute crispulous papillae, the basilar ones rosulate, elongate pinnately cut into small oblong mucronulate lobes; those of the stems sessile, abbreviate, obtuse, pinnatisect or somewhat absent; capitula in dense glomerules sessile, small, oblong; scales of the involucre yellow longly araneose at the margin, imbricate oblong attenuate at the apex, with subpalmately spines at the top; the inner ones membranous hyaline ovate, toothed, decurrent; flowers yellow; achenes minute, obovate smooth. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakalla; Abusîr; Mariut; Alexandria-West and -East; Abukîr. — **M. p. D. i.** Often in deep sandy places.

Local name: surret-en-na'ge (Forsk.).

Also known from Egypt.

var. **glabriceps** Aschers.-Schweinf. in Primit. Flor. Marmaric. (1893), p. 656 no. 188. — Scales of the involucre glabrous. — Flow. March.

M. ma. Marmarica: Matruqa.

Only known from Egypt.

1451. (16.) **Centaurea dimorpha** Viv. Flor. Libyc. (1824), p. 58 tab. 24 fig. 3. — Boiss. Flor. Or. III, p. 692. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 614. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 190.

— Centaurea eriocephala Boiss. and Reut. Diagnos. Plant. Or. Ser. II, fasc. 3 p. 86. — Centaurea Kralikii Boiss. Diagnos. Plant. Or. Ser. II, fasc. 3 p. 84 (only a stemless form). — Centaurea pseudophilostizus Godr. Flor. Juven., p. 86. — A perennial plant, 15—20 cm high or sometimes somewhat more, rarely acaulis, araneous-canescent or greyish, branching from the neck; central branch very short monocephalous, the lateral ones ascendent or procumbent, 1—3-cephalous, narrow-winged; basilar leaves rosulate entire, cut in ovate triangular mucronate-denticulate legate segments; those of the stem decurrent in small wings; capitula large solitary, terminal, ovate; scales of the involucre araneous-lanate narrowed into an appendix with 7—13 spinules; spines yellow, the terminal one larger than the side-ones; flowers purplish; achenes, with pappus. — Flow. March to April.

M. ma. Marmarica: Matruqa; Montaza; Alexandria-West and -East; Mandara; Abukîr.

Also known from other parts of North Africa.

600. (60.) **Carthamus** Linn.

Capitula homogamous; flowers all fertile (rarely outer 1-seriate female or 0). Involucre ovoid or subglobose; bracts ∞-seriate, imbricate below, the outer or intermediate foliaceous and spinescent in wild forms. Receptacle plane, setose. Pappus more or less paleaceous, ∞-seriate, occasionally 0. — Thistle-like rigid herbs, with alternate spinose-pinnatifid or spinulose-serrate leaves and terminal solitary or cymose rather large often fiercely involucrate scarlet yellow whitish or rose capitula.

Chiefly confined to the Mediterranean region and Levant.

A. Pappus chaffy.
  I. Flowers yellow . . . . . 1. **C. lanatus.**
  II. Flowers purple . . . . . 2. **C. glaucus.**
B. Pappus all composed of bristles . . . . . 3. **C. mareoticus.**
C. Pappus 0 . . . . . 4. **C. tinctorius.**

1452. (1.) **Carthamus lanatus** L. Spec. Plant. I (1753), p. 1163. Boiss. Flor. Or. III, p. 706. — Sibth. and Sm. Flor. graec., tab. 841. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 620. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 193. — Rchbch. Ic. XVI, tab. 15. — Carthamus taurica M. B. Flor. Tauric. Cauc. II, p. 285. — Carthamus creticus L. Spec. Plant. I, p. 1163 not of Syst. Nat. — Kentrophyllum lanatum DC. Bot. Gall. I, p. 293. — An annual or biennial plant 50 cm to 1 m high or sometimes somewhat more, more or less cobwebby;

stem erect, corymbose. Root-leaves lyrate, stem-leaves leathery, lanceolate, pinnatifid or parted. Heads ovate, 2—3 cm long; inner scales of the involucre entire. Flowerets yellow; achenes thick, top-shaped inner row of the pappus shorter than the outer one. — Flow. March to Apil.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Abukîr. — **N. d.** Damanhur; Tanta; Zaqaziq; Qalyub; Cairo. — **N. f.** Senhur.

Local name: shawârib 'antar (Schweinfurth).

Also known from the other parts of the Mediterranean region, France, Hongaria and Russia, Arabia Petraea and Palestine.

1453. (2.) **Carthamus glaucus** M. B. Flor. Taur. Cauc. II (1808), p. 284. — var. **syriacus** Boiss. Flor. Or. III (1875), p. 707. — Aschers. Flor. Rhin., p. 799 no. 161. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 621. — Sickenberg. Contrib. Flor. d'Eg., p. 249. — An annual plant, 50 cm to 1 m high or more, crisp-woolly to glabrescent, stems erect, corymbose. Lower leaves lyrate-pinnatifid, stem-leaves oblong-lanceolate to linear-lanceolate, spiny-toothed. Heads oblong-ovate, 2 cm long; pales usually white, the intermediate ones very acute; flowers purple; achenes short-ovate. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. (Dakhel). — **D. l. D. a. sept.** A common plant in deep sand.

Local name: hend-el-ghorâb (Ascherson).

Also known from Greece, Syria and Palestine.

var. **alexandrinus** Boiss. Flor. Or. III (1875), p. 707. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 621. — Kentrophyllum alexandrinum Boiss. Diagnos. Plant. Or., Ser. II fasc. VI p. 115. — Farinous-canescent and crispulous-lanate; all scales of the involucre obtuse, puberulous; flowers pale yellow. — Flow. March to April.

M. ma. M. p. Common throughout.

Local name: qûs (Ascherson).

Only known from Egypt.

var. **tenuis** Boiss. Flor. Or. III (1875), p. 707. — Kentrophyllum tenue Boiss. Diagnos. Plant. Or., Ser. II fasc. VI p. 1150. — Glabrescent. Leaves narrower; heads smaller; pappus becoming black; intermediate scales of the involucre obtuse. — Flow. March.

D. l. Between Alexandria and Siwa.

Also known from Palestine and Syria.

1454. (3.) **Carthamus mareoticus** Del. Illustr. Flor. d'Eg. (1813), p. 365 tab. 48 fig. I. — Boiss. Flor. Or. III, p. 710. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 97 no. 623. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 656 no. 194. — An annual plant, 15—20 cm high or sometimes somewhat more, sparingly and appressed arachnoid-pubescent, woody at the base, sparingly and divaricately branched, diffuse. Leaves coriaceous narrow lanceolate, canaliculate, spinose, shortly 2—3 spinose-dentate on either side; capitula terminal and sometimes dichotomous; scales of the involucre small linear twice as long as the head, the inner ones scarious ovate in the upper part pectinately spinulous-ciliate narrowed into a short petiole; flowers pale yellow; achenes ovate-turbinate subtetragonous; setae of the pappus scabrid. — Flow. February to March.

M. ma. Marmarica: Ras-el-Kenâ'is; Abusîr; Mariut; Alexandria-West and -East; Abukîr; a common plant throughout.

Only known from these localities.

1455. (4.) **Carthamus tinctorius** L. Spec. Plant. I (1753), p. 1162. — Boiss. Flor. Or. III, p. 709. — DC. Prodrom. VI, p. 612. — Rchbch. Ic. XV, tab. 15 fig. I. — Carthamus tinctorius var. typicus Schweinf. in Ber. d. Deut. Bot. Ges. II (1884), p. 365. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 250. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — An annual plant, 1—1,5 m high or more; stem corymbose. Leaves oblong, serrate-prickly, rarely entire, unarmed. Heads ovate-conical, 3 cm long, 2,5 cm broad at the base; outer scales of the involucre leaf-like, obsoletely prickly at the margin, flowers red. — Flow. March to April.

N. d. N. f. N. v. Cultivated and sometimes naturalized.

Local name: qortom; the flowers: 'osfur.

Probably origin from Arabia, cultivated in India, Orient, Egypt, Nubia, Abyssinia and Europe.

var. **inermis** Schweinfurth in Sitzber. Deut. Bot. Ges. II (1884), p. 365. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 96 no. 622. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Lower leaves subentire, less spinulous than in the type; appendages of the scales of the involucre foliaceous abbreviate, ovate mostly entire, shortly spinulous-mucronulate; the inner ones shortly spinulous at the apex; flowers often orange-coloured. — Flow. March to April.

N. d. N. v. Cultivated everywhere and often subspontaneous.

Local name: qortom; flowers: 'osfur.

Also known from Nubia and East-India.

601. (61.) **Carduncellus** Adans.

Heads homogamous, many- and equal-flowered. Involucre in several rows, the outer scales leaf-like, leathery, spiny, the inner-ones scarious. Receptacle bristly-fringed. Filaments free, pencil-like below the tip; anthers not caudate. Achenes acutely 4-angled, hilum lateral. Bristles of the pappus in several rows, nearly equal, long-feathery. — Herbs with blue flowers.

A small genus of only few species in the Mediterranean region.

1456. **Carduncellus eriocephalus** Boiss. Diagnos. Plant. Or., Ser. I fasc. X (1849) p. 100. — Flor. Or. III, p. 711. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 624. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Aschers. Flor. Rhinocol., p. 799 no. 162. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 765. — A perennial plant, 20—30 cm high or sometimes somewhat more; stem nearly simple, one-headed. Leaves rigid, pinnately lobed, spiny, the lower ones oblong, the upper ones lanceolate, acuminate. Head ovate-oblong; outer scales of the involucre lanceolate, cobwebby, inner-ones oblong-lanceolate, fringed toward the tip terminating in a prickle. — Flow. March to April.

D. l. D. i. D. a. sept. Not rare in deep sandy places and often on calcarious ground.

Local name: khosherûf (Schweinfurth).

Also known from Algeria, Tunisia, Tripolitania and Palestine.

602. (62.) **Cnicus** Linn.

Erect thistles. Leaves alternate, often decurrent, serrate-toothed or pinnatifid, spinescent. Heads solitary and long peduncled or subsessile, scattered or crowded, homogamous; flowers all fertile and bisexual, rarely dioecious, white, yellow or red, tube slender, limb equal or oblique 5-fid. Involucre ovoid hemispheric or globose; scales of the involucre ∞-seriate, appressed, erect spreading or recurved and spinescent or with a spinescent appendage; receptacle flat or convex, densely bristly. Filaments hairy or glabrous. Anther-bases sagittate, auricles connate, tails slender. Style-arms short, rarely filiform, obtuse. Achenes glabrous, obovoid, obtusely 4-angled, smooth or 5—10-ribbed, truncate or the top umbonate, basal areole nearly straight; pappus copious, hairs ∞-seriate, rigid, simple or barbellate, deciduous with a basal ring. — Characters of Carduus, but the outer involucral-scales foliaceous and the pappus hairs feathery.

A large genus of about 150 species, all Northern temperate region.

1457. **Cnicus arvensis** Hoffm. Flor. german. IV (1847), p. 180. — Serratula arvensis L. Spec. Plant. II, p. 820. — Flor. Dan., tab. 644. — Carduus arvensis Curt. Flor. Lond., tab. 57. — Engl. Bot. tab. 975. — Cirsium arvense Scop. Flor. Carn., p. 611. — DC. Prodrom. VI, p. 643. — Rchbch. Ic. XV, tab. 842. — Perennial and spreading by creeping rootstocks, 30—60 cm high, corymbosely branching, usually glabrate and green; stem and branches wingless; leaves lanceolate, pinnatifid and toothed, furnished with abundant weak prickles; heads loosely cymose, less than 2,5 cm high, dioecious: in male plant ovate-globular, and flowers (rose-purple) well exserted; in female oblong-campanulate and flowers less projecting: bracts of involucre all appressed, short, and with very small weak prickly points: only abortive anthers to the female flowers. — Flow. March.

M. ma. Alexandria-East; Ramle (Muschler).

Also known from Europe and naturalized in America.

603. (63.) **Scolymus** Linn.

Capitula homogamous, ligulate; flowers equal. Involucre ovoid or subglobose; bracts in few rows, imbricated, the outermost (or floral leaves) large, spinous-pinnatifid or -pectinate, exceeding the flowers. Receptacle elevated or conical, paleaceous; paleae dorsally compresso-plicate, enclosing the ovaries. Ligule truncate, 5-dentate. Anther-base sagittate; auricles mucronate-acuminate. Style-branches slender. Achenes dorsally compressed, inclosed in and adnate to the obcordate more or less winged paleae of the receptacle. Pappus of 2—3-barbellate setae which are wanting in our species, and of a denticulate annulus at the apex of the achene. — Erect thistle-like herbs with alternate spinous leaves, terminal or lateral sessile capitula, and yellow flowers.

A genus of 3 species chiefly Mediterranean.

A. Leaves with a thick, white margin . . . . . 1. **S. maculatus.**
B. Leaves without a thick, white margin . . . . . 2. **S. hispanicus.**

1458. (1.) **Scolymus maculatus** L. Spec. Plant. I (1753), p. 813. — Boiss. Flor. Or. III, p. 713. — Sibth. and Smith Flor. graec. tab. 824. — Rchbch. Ic. V tab. 2. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 625. — A nearly glabrous coarse rigid annual, 30—90 cm high. Stem and spreading branches whitish, winged by the decurrence of the leaves. Stem-leaves oblong, sinuous-pinnatifid, spinous-pointed, sessile, about 5—9 cm long; margins cartilaginous; the basilar leaves broadly spathulate, spinous-dentate, subpetiolate, 6 by 2 cm; the floral leaves pectinate. Capitula nearly 2 cm long in flower.

Inner involucral bracts linear-lanceolate, 1 cm long, entire, pointed. Outer ligules nigro-pilose. Achenes obovate. Setae of the pappus 0. — Flow. March to April.

N. d. N. f. N. v. Common in waste places. — **O.** Dakhel (Ascherson).

Occurs throughout the Mediterranean region and Cordofan.

1459. (2.) **Scolymus hispanicus** L. Spec. Plant. I (1753), p. 813. — Boiss. Flor. Or. III, p. 713. — Sibth. and Smith Flor. graec. tab. 825. — Rchbch. Ic. XV, tab. 1. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 626. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — A cripulous-pubescent rigid biennial plant, 50 cm to 1 m high, or sometimes somewhat more. Stems and spreading branches greenish, somewhat winged by the decurrence of the leaves. Leaves oblong-lanceolate, sinuate-pinnatipartite, spinous-ponited, nerved, sessile, about 3—6 cm long; the basilar leaves broadly spathulate. Capitula axillary, solitary or sometimes 2—4 congested; bracts 2—3 leaflike canaliculate spinous-pointed; scales of the involucre all acuminate; the inner-ones linear-lanceolate, entire, pointed; the outer ones larger. Achenes obovate; setae of the pappus 2. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and -East; Mandara to Abukîr, common in deep sand. **O.** Dakhel (Ascherson).

Common in the Mediterranean region, the Canaries and Madeira.

604. (64.) **Cichorium** Linn.

Capitula homogamous; flowers all ligulate. Innermost involucral bracts sub-uniseriate, subcoriaceous, at length concave and embracing the outer achenes; the outer involucral bracts few, shorter. Receptacle nearly flat, naked or sparingly fimbrillate. Ligule truncate, 5-dentate at the apex. Anthers sagittate at the base; auricle mucronate-acuminate. Style-branches slender, rather obtuse. Achenes somewhat 5-angled or the outer ones rather compressed, obovoid, truncate or margined at the apex. Pappus shortly paleaceous or wanting. — Erect herbs, glabrous or sparingly hispid, with milky sap, alternate leaves, sessile (as well as sometimes pedunculate) heads, and blue flowers.

A genus of 4 species, chiefly found in the northern hemisphere of the Old World.

A. A perennial plant . . . . . 1. C. Intybus.
B. Annual.
I. Stem-leaves ovate-lanceolate . . . . . 2. C. pumilum.
II. Stem-leaves hastate . . . . . 3. C. endivia.

1460. (1.) **Cichorium Intybus** L. Spec. Plant. I (1753), p. 1142. — Boiss. Flor. Or. III, p. 715. — Rchbch. Ic. XV, tab. 6. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Engl. Bot., tab. 539. — Cichorium byzantinum Clem. Sertul., p. 51. — A perennial plant, 30—60 cm high or sometimes somewhat more, erect, divaricately branched. Leaves hirsute, the lower ones runcinate, the terminal segment long, acute; stem-leaves half-clasping, lanceolate. Lateral heads sessile, in clusters of 2-several, terminal solitary, peduncled; outer scales of the involucre ovate-lanceolate, inner ones twice as long, all more or less glandular-fringed; flowers thrice as long as the involucre; achenes 8—10 times as long as the pappus. — Flow. February to March.

M. ma. Alexandria-West and -East, recently introduced.

Common throughout Europe and whole Sibiria.

1461. (2.) **Cichorium pumilum** Jacq. Observ. Bot. IV (1791), p. 3 tab. 80. — Sibth. and Smith Flor. graec., tab. 822. — Cichorium divaricatum Schousb. Mar., p. 197. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 627. — Boiss. Flor. Or. III, p. 716. — An annual plant, 30 cm to 1 m high or sometimes somewhat more, stem forked, branching from the base. Root-leaves dentate to runcinate-pinnatipartite; stem-leaves minute, linear. Lateral heads sessile, clustered, terminal solitary, peduncled, peduncles at length thickened, club-shaped; outer scales of the involucre ovate, obtuse, ciliate or unarmed, not glandular, inner ones much longer; flowers thrice as long as the involucre; pales as long as the achenes. — Flow. March to April.

N. d. N. f. N. v. Often in sandy and waste places. — **O.** Little Oasis.

Local name: hindîb (Schweinfurth); maqd (Ascherson); sablangâro (Ascherson); serîns (Schweinfurth).

Occurs throughout the Mediterranean region.

1462. (3.) **Cichorium endivia** L. Spec. Plant. I (1753), p. 813. — Boiss. Flor. Or. III, p. 716. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 98 no. 628. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 195. — Sickenberg. Contrib. Flor. d'Eg., p. 258. — Fraas Flor. Class., p. 197. — Differs from the preceeding species by the stem-leaves, which are hastate at the base and smaller and narrower glandulose-ciliate scales of the involucre and setae of the pappus, which are fourtimes shorter than the achenes. — Flow. February to March.

M. ma. M. p. N. d. N. f. N. v. O. Spontaneous and often cultivated.

Local name: shikurîya (Forsk.; Del.); abur-rukeyb (Ascherson); silîs (Aschers.); endiwîya (Schweinfurth); generally: hindîb; hendeba.

Also known from Europe and other parts of the Mediterranean region.

605. (65.) **Koelpinia** Pall.

Heads several-flowered. Receptacle naked. Outer involucre of two, very small scales; scales of true involucre 5—7, in one row, more or less united in fruit. Achenes free, uniform, slender-cylindrical, curved, striate, beset with barbed prickles in rows, the terminal ones 7—9, recurved, wineglass-shaped. — Annual herbs, with yellow flowers.

A small genus of only 3 species in the African and Asiatic Mediterranean region to the Himalaya.

1463. **Koelpinia linearis** Pall. Itin. III App. (1776), p. 755. — Boiss. Flor. Or. III, p. 721. — Jaub. and Spach Illustr. Plant. Orient., tab. 286. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 631. — Aschers. Flor. Rhinocol., p. 799 no. 164. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 766. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Lapsana Koelpinia L. fil., Supplem. p. 248. — Sibth. and Smith Flor. graec., tab. 819. — Rhagadiolus Koelpinia Willd. Spec. Plant. III, p. 1526. — A small annual plant, 10—20 cm high or sometimes somewhat more, stems erect, dichotomous. Leaves linear-filiform. Flowers a little longer than the involucre; achenes spreading, twice as long as the linear-lanceolate scales. — Flow. March to April.

M. ma. Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **D. i.** Hewa; Wady-el-'Arîsh. — **D. a. sept.** Common in the Wadies.

Everywhere in the Mediterranean region to the Himalaya.

606. (66.) **Hyoseris** Linn.

Heads many-flowered. Receptacle naked. Involucre calyculate; scales of the true involucre 6—10, hardened in fruit, enclosing the outer achenes. Outer achenes compressed at back, linear, with a pappus of short, scabrous bristles; intermediate achenes compressed-winged, with a pappus of short bristles and dilated pales; inner achenes angular-cylindrical, slender, frequently sterile, sometimes 0. — Stemless herbs.

A small genus in the Mediterranean region.

1464. **Hyoseris lucida** L. Mant. I (1771), p. 103. — Boiss. Flor. Or. III, p. 718. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98

no. 629. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 196. — Lapsana taraxacoides Forsk. Flor. aeg.-arab., p. 145. — A perennial plant, 20 to 30 cm high or sometimes somewhat more, glabrous; root vertical, long; leaves rosulate somewhat fleshy linear-oblong pinnatipartite in minute ovate-triangular entire segments; scapes somewhat longer or as long as the leaves; capitula medium sized; bracts of the calycule in two rows half as long as the involucre, involucre bracts erect; marginal achenes compressed, linear with a crown of short setae; the other ones scabrous, terete, striate. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr.

Also known from Cyrenaica and Western Marmarica.

607. (67.) **Rhagadiolus** Tournef.

Heads several-flowered. Receptacle naked, glabrous. Involucre in two rows, the outer one calyculate, of 5, small scales, the inner one of 5—8, cylindrical scales, wholly enclosing the marginal achenes, hardened and persistent in fruit. Achenes awl-shaped, somewhat compressed at the back, gradually tapering to the tip, all bald, the inner ones not enclosed by scales, caducous, the outer ones at length spreading in a star shape, persistent. — Annual herbs with yellow flowers.

A small genus of only a few species from the Canaries to Persia.

1465. **Rhagadiolus stellatus** Willd. Spec. Plant. III (1800), p. 1625. — Boiss. Flor. Or. III, p. 722. — Rchbch. Ic. XIX, tab. V fig. I—II. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 632. — Lapsana Rhagadiolus L. Spec. Plant. I, p. 1141. — Sibth. and Smith Flor. graec., tab. 818. — Lapsana stellata L. Spec. Plant. I, p. 1141. — An annual plant, 30 cm to 1 m high or rarely somewhat more; stems erect or diffuse, dichotomously branched. Leaves tender, the lower ones lyrate, toothed or nearly entire; the other subsessile. Capitula lateral and terminal; the lateral ones shortly, pedunculated, the terminal ones long-pedunculated; the outer achenes 5—8, linear-cylindric, erect or subincurved, smooth or somewhat puberulous. — Flow. March to April.

M. ma. Mariut; Abusîr; Montaza; Alexandria-West and -East; Mandara; Abukîr.

Common in the Mediterranean region of Europe and North Africa Canarian Islands and Madeira.

608. (68.) **Hedypnois** Tourn.

Heads many-flowered. Receptacle naked. Involucre in several rows, the outer scales minute, calyculate, the inner ones concave, hardened in fruit, nearly enclosing the marginal achenes. Achenes nearly terete, striate, beakless, the outer ones tipped with a short, cup-like, ragged-toothed margin, the inner ones with lanceolate-subulate pales. — Annual herbs.

A small genus of only 3 species widely distributed in the Mediterranean region.

1466. **Hedypnois rhagadioloides** Willd. Spec. Plant. III (1800), p. 1617. — Boiss. Flor. Or. III, p. 719. — Sibth. and Smith Flor. graec., tab. 812. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 630. — Aschers. Flor. Rhinocol., p. 799 no. 163. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 766. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 197. — Hedypnois cretica Boiss. Flor. Or. III, p. 719. — Rchbch. Ic. XIX, tab. XI fig. III—IV. — Hedypnois tubaeformis Ten. Flor. Nap. II, p. 179 tab. 73. — Hyoseris rhagadioloides L. Spec. Plant. I, p. 1139. — An annual plant, 10—20 cm high or sometimes somewhat more; stems erect or diffuse, sparingly branched, sometimes reduced to a 1—2-headed scape. Root-leaves obovate to obovate-oblong, sinuate-toothed to pinnatifid; peduncles somewhat thickened more or less fleshy; achenes scabridulous; the inner ones with a pappus as long as the involucre. — Flow. January to March.

M. ma. Marmarica: Matruqa; Dakalla; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Brullus; el-'Arîsh.

Local name: surret-el-kebsh (Ascherson).

Widely distributed in the Mediterranean region.

609. (69.) **Urospermum** Juss.

Heads many-flowered. Involucre bell-shaped, the scales 8—10 in one row, united below. Receptacle naked. Achenes similar, compressed, covered with muricate scales, ending in a hollow beak jointed at the base and separated from the seed by a partition. Pappus similar, in one row, feathery, not interlaced. — Annual herbs.

A small genus of only two species in the Mediterranean region, from the Canaries to Persia.

1467. **Urospermum picroides** F. W. Schmidt Sammlg. phys. oekonom. Aufs. I (1795), p. 275. — Boiss. Flor. Or. III, p. 743. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 639. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 201. — Rchbch. Ic. XIX, tab. 26

fig. II—IV. — An annual herb, 30—50 cm high or sometimes somewhat more, more or less setulose. Leaves oblong-spathulate, entire, pinnatifid or lyrate, those of the stem auricled-clasping, the upper ones lanceolate to linear. Heads 2 cm long, at first conical, then campanulate; base of the beak ovate, inflated, tip filiform. — Flow. December to May.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. Common in sandy and waste places, often in fields and on way-sides.

Local name: silîs; sileys; besîk; dordâ (Ascherson); galawâyen; qoddeyd (Ascherson).

Common in the whole Mediterranean region.

610. (70.) **Leontodon** Linn.

Herbs, with a perennial stock, radical, spreading leaves, simple or slightly branched, usually leafless flower-stems and yellow flowers. Involucres of several nearly equal, erect, inner bracts, and 2 or 3 rows of smaller outer ones. Receptacle without bracts between the flowers. Achenes more or less tapering at the top into a short beak, sometimes scarcely perceptible. Pappus of all, or at least the central flowers, composed of feathery hairs.

A genus not numerous in species, but abundantly spread over Europe and Russian Asia. It was formerly united with Taraxacum, from which it has been separated on account of the feathery pappus.

A. Inner achenes not beaked . . . . . 1. **L. hispidulum.**
B. Inner achenes long beaked . . . . . 2. **L. tuberosum.**

1468. (1.) **Leontodon hispidulum** (Del.) Boiss. Flor. Or. III (1875), p. 127. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 634. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 766. — Sickenberg. Contrib. Flor. d'Eg., p. 250. — Aschers. Flor. Rhinocol., p. 800 no. 165. — Crepis hispidula Del. Illustr. Flor. d'Eg., p. 117 tab. 42 fig. 1. — Apargia annua Vis. Plant. Alg., p. 38 tap. 6. — Leontodon arabicum Boiss. Flor. Or. III, p. 727—728. — Kalbfussia orientalis Jaub. and Spach Illustr. Plant. Or. III, p. 117 tab. 283. — Oporinia hispidula DC. Prodrom. VII, p. 109. — Fidelia kalbfussioides Sch. Bip. in Flora (1834), p. 482. — Millina arabica Boiss. Plant. Or. Diagn., Ser. I fasc. XI p. 78. — The whole plant more or less hispid with erect, stiff, short hairs, often forked or stellate at the top. Leaves long and narrow, coarsely toothed or pinnatifid. Peduncles 9 cm to 20 cm or more long, slightly swollen at the top, with a single rather large flower-head. Bracts of the involucre narrow, and always hispid, the inner row much longer than the outer ones. Achenes long, striate

and transversely rugose, slightly tapering at the top, but seldom distinctly beaked. Pappus of about a dozen brown, feathery hairs, about as long as the achene, surrounded by 5 or 6 others not a quarter that length. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. D. l. D. i. D. a. sept. Common throughout.

Also known from Arabia Petraea, Syria and Mesopotamia.

1469. (2.) **Leontodon tuberosum** L. Spec. Plant. I (1753), p. 1123. — Thrincia tuberosa DC. Flor. Franc. IV, p. 52. — Boiss. Flor. Or. III, p. 726. — Rchbch. Ic. XIX, tab. XIII fig. 1. — Apargia tuberosa Willd. Spec. Plant. III, p. 1126. — Thrincia grumosa Brot. Flor. Lus. I, p. 325. — Thrincia tripolitania Sch. Bip. ap. Coss. in Bull. Soc. Bot. France XXII (1875), p. 48. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 633. — A perennial plant, 10—25 cm high or sometimes somewhat more, more or less bristly with forked hairs; root-stock very short, praemorse, surrounded by a cluster of fusiform tubers. Leaves oblong-spathulate, dentate to lyrate or runcinate. Scapes 1-headed; heads 2 cm long, 1,5 cm broad; scales of the involucre lanceolate, more or less hairy at the back; achenes muricate-wrinkled, the outer ones tapering, the inner ones a little longer than the beak. — Flow. March to April.

M. ma. Mariut; Alexandria-West and -East.

Also known from other parts of the Sahara region, Spain, Italy, Arabia Petraea and Palestine.

611. (71.) **Picris** Linn.

Involucre of several nearly equal erect inner bracts, with 2 or 3 rows of smaller outer ones, usually spreading. Receptacle without scales. Flowers all ligulate. Achenes transversely striate or muricate, not all or very shortly beaked. Pappus of whitish fine bristles, of which the inner ones at least are plumose. — Coarse hispid annuals. Leaves alternate, toothed. Flower heads in a loose irregular corymb. Flowers yellow.

A genus containing but few species, natives of the temperate and subtropical regions of the northern hemisphere in the Old World.

A. Pappus of all achenes equal.
  I. Achenes not beaked . . . . . 1. P. Sprengeriana.
  II. Achenes with beaks.
    a) Beaks one sixth the length of the achenes 2. P. strigosa.
    b) Beaks one fourth the length of the achenes 3. P. sulphurea.

B. Pappus of the achenes unequal; pappus of the marginal achenes confluent into a fringed cup.
I. Peduncles long . . . . . 4. **P. coronopifolia.**
II. Peduncles very short . . . . . 5. **P. echioides.**

1470. (1.) **Picris Sprengeriana** Lam. Dict. V (1804), p. 310. — Boiss. Flor. Or. III, p. 738. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 635. — Hieracium Sprengerianum L. Spec. Plant. I, p. 1130. — Picris laxa DC. Prodrom. VII, p. 129. — Picris altissima C. Koch in Linnaea XXII, p. 66 not of Del. — Hieracium ciliatum Willd. Spec. Plant. III, p. 1585. — A annual plant, 30—80 cm high, stem erect, divaricately branched. Leaves entire or sinuate-toothed, the radical ones oblanceolate, tapering to a petiole, the others clasping, appendage at the base. Heads 1 cm long; peduncles not thickened; achenes short-tapering, not beaked. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D i. D. a. sept. Common throughout.

Also known from the other parts of the Mediterranean region.

var. **altissima** Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1887), p. 98 no. 635. — Picris altissima Del. Illustr. Flor. d'Eg., p. 116 tab. 141 fig. 2. — Up to 60 cm high or somewhat more, beset with glochidious hairs. — Flow. March to April.

M. ma. N. d. N. f. N. v. Often between the type.

Local name: murreyr (Del.).

Also known from other parts of the Mediterranean region.

1471. (2.) **Picris strigosa** M. B. Flor. Tauric. Caucasic. II (1808), p. 250. — Boiss. Flor. Or. III, p. 736. — Sickenberg. Contrib. Flor. d'Eg., p. 251. — Picris glaucescens DC. Prodrom. VII. p. 130. — A biennial plant, 1 m high or more, strigose, branching from the base; stems slender, acutely striate, angular. Lower leaves oblong-lanceolate, runcinate to lyrate, upper ones sessile, deflexed, linear. Heads 5—8 mm long, the terminal one on long, slender peduncles, the lateral ones more rarely on short peduncles; achenes tapering into a very short beak. — Flow. March to April.

N. v. Ab-el-Ejan near Tibîn, S. Helwân, borders of the desert.

Also known from Arabia Petraea, Palestine and Syria.

1472. (3.) **Picris sulphurea** Del. Illustr. Flor. d'Eg. (1813), p. 114 tab. 40 fig. 2. — Boiss. Flor. Or. III, p. 739. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 98 no. 636. — Sickenberg. Contrib. Flor. d'Eg., p. 251. — Picris nilotica Sieb. in exsicc. — Deckera nilotica Sch. Bip. in Flora (1834), p. 479. — An annual plant, 20—40 cm

high or sometimes somewhat more, densely canescent; stems simple, or 2-forked, 2-headed. Root-leaves oblanceolate, sinuate-toothed or coarsely pinnatilobed; stem-leaves 1—2, linear, or 0. Peduncles not thickened; heads 1,5 cm long; achenes oblong, yellow, rather abruptly beaked, beak longer than the achene.

N. d. N. f. N. v. O. (Dakhel.) — **D. l. D. a. sept. D. a. mer.** Common in deep sandy places.

Also known from Arabia Petraea.

1473. (4.) **Picris coronopifolia** DC. Prodrom. VII (1838), p. 131. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 637. — Sickenberg. Contrib. Flor. d'Eg., p. 251. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 200. — Aschers. Flor. Rhinocol., p. 806 no. 166. — Picris radicata Less. Synops. Compos., p. 134. — Crepis radicata Forsk. Flor. aeg.-arab., p. 145. — Picris Cyrata Del. Illustr. Flor. d'Eg., p. 116 tab. 40 fig. 3. — Spitzelia Sieberi Sch. Bip. in Linnaea (1834), p. 474. — Spitzelia lyrata Sch. Bip. in Linnaea (1835), p. 638. — Leontodon coronopifolium Desf. Flor. All. II tab. 214. — An annual plant, 15—25 cm long, rough-papillose. Root-leaves rosetted, oblanceolate, sinuate-pinnatifid into rounded or ovate lobes; stem-leaves few, linear. Peduncles long, scarcely thickened; heads 1,5 cm long; marginal achenes cylindrical, incurved, truncate, disk achenes very small, oblong, rounded or narrowed at the tip. — Flow. March to April.

M. ma. M. p. D. l. D. i. D. a. sept. Everywhere in deep sandy places.

Local name: kharra-binty (Ascherson); helâwân (Ascherson).

Also known from Tunisia and Arabia Petraea.

var. **pilosa** (Del.) Aschers. and Schweinf. in Aschers.-Schweinf. Ill. Flor. d'Eg. (1889), p. 99 no. 637. — Sickenberg. Contrib. Flor. d'Eg., p. 251. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 200. — Picris pilosa Del. Illustr. Flor. d'Eg., p. 114 tab. 114 fig. 2. — Spitzelia aegyptiaca Sch. Bip. in Flora (1833), p. 727. — An annual plant with glochidiate hairs; scales of the involucre densely pilous. — Flow. March to April.

M. ma. Marmarica: Ras-el-Kenâ'is; Matruqa; Abusîr; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta.

Local name: khawa-binty (Ascherson).

Only known from Egypt.

1474. (5.) **Picris echioides** L. Spec. Plant. I (1753), p. 1114. Helminthia echioides Gaertn. De Fruct. II, p. 368. — Rchbch. Icon.

XIX, tab. 27. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 638. — Boiss. Flor. Or. III, p. 742. — An annual plant, 30—50 cm high or sometimes somewhat more; stems thick, forked. Leaves oblong-lanceolate, entire or sinuate-toothed. Heads terminal, 1,5 cm long, short peduncled, 2—5 in a cluster. — Flow. February to May.

N. d. (?) "Aegyptia inferior" Husson ex Boiss. Flor. Or. II p. 742.

Also known from the whole Mediterranean basin and Arabia Petraea.

612. (72.) **Tragopogon** Linn.

Heads many-flowered. Involucre simple, of 8 scales in one row. Receptacle honey-combed, hairy at margin. Achenes gradually tapering into a long beak, the marginal ones tipped with 5, scabrous pales, the central with feathery, interlaced pappus. — Annual herbs.

1475. **Tragopogon glaber** (L.) Benth. and Hook. Gen. Plant. II (1873), p. 618. — Geropogon glaber L. Spec. Plant. I, p. 1009. — Boiss. Flor. Or. III, p. 744. — Jacq. Hort.Vindob., tab. 33. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 640. — Geropogon hirsutum L. Spec. Plant. I, p. 1009. — Sibth. and Smith Prodrom. Flor. graec., tab. 778. — Tragopogon crocifolium DC. Prodrom. VII, p. 139. — An annual plant, 20—50 cm high, or sometimes somewhat more, glabrous or sparingly hairy; stem erect, terete. Leaves linear, the lower dilated at the base, the upper ones half-clasping. Peduncles hollow, at length thickened; scales of the involucre linear-lanceolate, longer than the pink or violet flowerets; achenes striate, scabrous. — Flow. March to April.

M. ma. Mariut; Abd-el-Qadr. — **N. d.** Kafr Hawân near Faqûs. — **N. f.** Medînet-el-Fayûm; Tamîa; Senhûr; Senûris. — **O.** Little Oasis.

Also known from the other parts of Mediterranean region.

613. (73.) **Scorzonera** Linn.

Heads many-flowered. Involucre imbricated. Receptacle naked. Achenes supported at the base by a hollow stalk surrounding the hilum, eiter very short and indistinct, or elongated and rather inflated. Pappus feathery to the tip, interlaced, or feathery at the base and scabrous at the tip or scabrous from the base to the tip. — Herbs, rarely woody at the base.

A large genus of nearly 100 species in Middle Europe and the Mediterranean region to Middle Asia.

A. Stems scape-like or few branched; leaves mostly radical.
I. Flowers puplish . . . . . 1. **S. alexandrina.**
II. Flowers yellow . . . . . 2. **S. Schweinfurthii.**
B. Stems leafy, branching . . . . . 3. **S. hispanica.**

1476. (1.) **Scorzonera alexandrina** Boiss. Flor. Or. III (1875), p. 760. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 99 no. 641. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 202. — A perennial plant, 5—15 cm high or sometimes somewhat more, appressed-canescent, root cylindrical with a ovate-globose tuber at the base; stem scape-like short, monocephalous, in the lower part leafy, naked or with short leaflets; leaves rosulate, narrow-linear sometimes undulate, base dilatate; capitula large; scales of the involucre canescent or glabrescent, few, broad, the lower ones ovate abruptly and shortly crispidate-acuminate, the lowest lanceolate; flowers purplish twice as long as the involucre; achenes muricate. — Flow. March to April.

M. ma. Marmarica: Matruqa; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **D. l. D. a. sept.** Common in deep sandy places.

Local name: ethbâ (Wilkinson); debbâsh (Schweinfurth).

Also known from Algeria, Tunisia and Tripolitania.

1477. (2.) **Scorzonera Schweinfurthii** Boiss. Flor. Or., Supplem. (1888), p. 320. — Aschers.-Schweinf. Illustr. d'Eg., Supplem. p. 766. — A perennial plant. Appressed-cobwebby, canescent; root vertical, tuberous; neck sheathed in the remains of the petioles; stems simple or branched, densely leafy below. Leaves linear, elongated, sheathing at the base, zigzag, recurved, and usually wavy-margined. Peduncles at length thickened at the apex; heads 2—3 cm long; scales of the involucre few, very unequal, ovate to lanceolate; flowers yellow, reddish without, once and a half as long as the involucre; achenes 5-furrowed, scaly-muricate, rather longer than the white pappus. — Flow. March to April.

D. a. sept. Northern and Southern Galala.

Only known from Egypt.

1478. (3.) **Scorzonera hispanica** L. Spec. Plant. I (1753), p. 1112. — Boiss. Flor. Or. III, p. 767. — Aschers.-Schweinf. Illustr. Flor. d'Eg., p. 99. — Scorzonera glastifolia Willd. Spec. Plant. III, p. 1499. — Rchbch. Ic. XIX, tab. 33. — Scorzonera taurica M. B. Flor. Cauc. tauric. II, p. 234. — A perennial plant, 30—40 cm high or sometimes somewhat more; root vertical; stems simple sublanate then

glabrous erect, in the lower part leafy, monocephalous. Leaves somewhat floccose glabrate lanceolate many-nerved, minutely toothed at the margin, the lower one petioled, the upper ones attenuate-acuminate, amplexicaul at the base, the uppest ones filiform; capitula large; scales of the involucre acute, ciliate at the margin, the outer ones ovate, the inner ones oblong-lanceolate; marginal as long as the achenes; achenes especially the marginal acutish angulate-costate. — Flow. December to March.

M. ma. N. d. N. v. Cultivated everywhere and sometimes subspontaneous.

Also known from Europa.

614. (74.) **Heteroderis** Boiss.

Heads many-flowered. Involucre calyculate. Receptacle naked. Achenes biform, those of the ray-flowerets not striate sparingly pappus or without a pappus, those of the disk-flowers prismatic in the upper part costate with a filiform rostrum. — Annual herbs with aspect of Crepis.

A small genus in the Orient.

1479. **Heteroderis aegyptiaca** Schweinf. Illustr. Flor. d'Eg., Supplem. (1889) p. 766. — Stems decumbent, pubescent or sparingly hispid; leaves rosulate, glabrous or hispiduluous on the nerves, oblong-spathulate, sinuate-dentate or sinuate-lobate, denticulate, teeth callous; stem-leaves 1—2 amplexicaul oblong-lanceolate or linear; capitula 2—5 medium-sized, corymbose shortly tomentellous, oblong, 15—20-flowered; scales of the calyx-triangular, acute, broadly scarious-margined, glabrescent one fourth of the involucre; scales of the involucre canescent purplish at the base, hispidulous, with setules at the top; terminal seta often thickened, reddish; achenes prismatic attenuate at the base, those of the disk especially tubercled costate, with a rostrum. — Flow. March to April.

D. a. sept. Northern Galala, 1150 m. s. m. in the Wady Qorn-el Kabsh and in the Wady Gisly (Schweinfurth).

Only known from Egypt.

615. (75.) **Launaea** Cass.

Capitula homogamous, ligulate. Involucre campanulate oblong or cylindrical; bracts in many rows, imbricate, usually with scarious margins, the inner ones subequal, the outer ones shorter. Receptacle flat, naked. Ligule truncate, 5-dentate at the apex. Anther-base sagittate, auricles acute or shortly setaceous-acuminate. Style-

branches slender. Achenes narrow, not compressed, 4—5-costate, truncate at the apex. Pappus copiously setose, fine, white, smooth, deciduous in one piece. — Glabrous herbs with mostly radical leaves and yellow flowers.

A genus of about 20 species, extending from South Africa and the Canary Islands to India.

A. Herbs. Achenes terete-prismatic, truncate or acutish.
  I. Heads ovate. Outer achenes velvety, smooth.
    a) Herbs 50—80 cm high or more . . . . . 1. **L. mucronata.**
    b) Herbs 3—20 cm high.
      1. Scales of the involucre white margined 2. **L. tenuiloba.**
      2. Scales of the involucre not white margined.
        α) Achenes velutine . . . . . 3. **L. Cassiniana.**
        β) Achenes long villous-sericeous . . . 4. **L. angustifolia.**
  II. Herbs. Heads cylindrical. Outer achenes wrinkled-muricate.
    a) Achenes obtuse at the tip . . . . . 5. **L. nudicaulis.**
    b) Achenes acutish at the tip . . . . . 6. **L. fallax.**
B. Herbs. Achenes rather compressed, the outer ones tapering or beaked, transversely wrinkled . . . 7. **L. massavensis.**
C. Herbs. Achenes short, fungous, flattened, truncated-retuse, winged at angles . . . . . 8. **L. glomerata.**
D. Intricately branched, spinescent shrubs. Achenes somewhat dorsally flattened . . . . . 9. **L. spinosa.**

1480. (1.) **Launaea mucronata** Muschler comb. nov. — Zollikoferia mucronata Boiss. Diagnos. Plant. Orient., Ser. I fasc. VII, p. 12. — Flor. Or. III, p. 822. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 648. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 204. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Sonchus Candolleanus Jaub. and Spach Illustr. Plant. Or., tab. 279. — A perennial plant, 50—80 cm high, or sometimes somewhat more, glabrous; stem erect, dichotomous, and loosely corymbose. Lower leaves petioled, lanceolate in outline, bipinnatipartite or -lobed, lobes oblong to linear, mucronate; stem-leaves oblong, auricled-toothed or many-cleft at the base. Scales of the involucre white-margined, ovate to oblong, tip of the outer ones contracted into an obtuse prickle; achenes 4-horned at the base; pappus persistent, longer than the achene. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakalla; Abusîr; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Damietta. — **D. i.** Qantara; Desert-el-Tîh.

Local name: libbeyn (Ascherson); gelâweyn; kharra-bitty (Ascherson).

Also known from Algeria, Tunisia, Tripolitania; Arabia Petraea, Mesopotamia and Persia.

1481. (2.) **Launaea tenuiloba** Muschler comb. nov. — Zollikoferia tenuiloba Boiss. Diagnos. Plant. Or., Ser. I fasc. XI p. 50. — Flor. Or. III, p. 822. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 649. — Aschers. Flor. Sirb., p. 811 no. 24. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Aschers. Flor. Rhinocol., p. 800 no. 168. — A biennial plant, 10—30 cm high or sometimes somewhat more, glabrous; stem branching from the neck. Root-leaves rosetted, elongated, pinnatipartite into slender, linear, entire or sparingly denticulate, white-mucronate lobes; stem-leaves with minute appendages at the base. Outer scales of the involucre ovate, abruptly white-tipped, inner ones linear-lanceolate; pappus persistent, as long as the achene.

M. p. El-ʾArîsh. — **D. i.** Sheykh Serhân near Sâlihîya.

Local name: slîhet-el-gemâl (Ascherson).

Also known from Arabia Petraea and Palestine.

1482. (3.) **Launaea Cassiniana** (Jaub. and Spach) Muschler comb. nov. — Zollikoferia Cassiniana Boiss. Flor. Or. III, p. 822. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 650. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Sonchus Cassianus Jaub. and Spach Illustr. Plant. Orient. III, p. 112 tab. 280. — A perennial plant, 20—30 cm high or sometimes somewhat more, glabrous; stems erect dichotomous or divariately branched, loose corymbose. Basilar leaves petioled oblong-lanceolate in outline with oblong-lanceolate more or less deep callous-toothed segments; stem-leaves very minute, auriculate at the base, incised or dentate, lanceolate; capitula ovata, medium-sized terminal, long-peduncled; scales of the involucre herbaceous, ovate and oblong shortly and obtusely mucronate; achenes slowly colum-prismatic truncate at the top, shortly velutine, the inner-ones glabrous; pappus as long as the achenes. — Flow. March to April.

O. Dakhel; Great Oasis. — **D. l. D. i. D. a. sept. D. a. mer.** Often in deep sandy places.

Local name: murreyrey-entîye (Schweinfurth); haudau (Ehrenberg); ʾadeyd (Klunzinger); generally: murreyr; yanoûr; marûr; abad; haddieyde (Schweinfurth).

Also known from Tropical Arabia and Northern India.

1483. (4.) **Launaea angustifolia** Muschler comb. nov. — Zollikoferia angustifolia Coss. and Dur. in Bull. Soc. Bot. Franc. II, p. 254. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 655. — Aschers. Flor. Rhinocol., p. 800 no. 169. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 767. — Sickenberg. Contrib. Flor. d'Eg., p. 652. — Aschers. Flor. Sirbon., p. 812 no. 25. — Zollikoferia arabica Boiss. Diagnos. Plant. Or., Ser. I fasc. VIII p. 12. — Flor. Or. III, p. 823. — Sonchus angustifolius Desf. Flor. Atlant. II, p. 225. — A biennial plant, 3—20 cm high, or sometimes somewhat more, glabrous, branching from the base; stems thick, 1—4-headed. Leaves oblong-lanceolate in outline, pectinate-pinnatifid into oblong, callous-toothed lobes. Scales of the involucre herbaceous, not margined, orbicular to elliptical and oblong, obtusely callous-tipped; achenes silky, 4-angled, hirsute at angles, the short pappus persistent, longer than the achene. — Flow. December to April.

M. ma. Marmarica: Matruqa; Dakalla; Mariut; Montaza; Alexandria-West to Abukîr. — **M. p.** Rosetta; Damietta; el-ʿArish; Feqîra; Gels-Mohamedîya.

Local name: slîh.

Also known from Algeria, Tunisia, Tripolitania and Arabia and Petraea.

1484. (5.) **Launaea nudicaulis** Hook. Flor. Brit. Ind. III (1882), p. 416. — Zollikoferia nudicaulis Boiss. Flor. Or. III, p. 824. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 652. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 265. — Aschers. Flor. Rhinocol., p. 880 no. 170. — Chondrilla nudicaulis L. Mant. I, p. 278. — Microrhynchus nudicaulis Less. Syn. Comp., p. 139. — Jaub. and Spach Illustr. Plant. Or., tab. 278. — Sonchus divaricatus Desf. Ann. Mus. Par. II, p. 212 tab. 46. — Del. Illustr. Flor. d'Eg., p. 63. — A perennial plant, 30—50 cm high, or sometimes somewhat more, loosely corymbose above. Basilar leaves rosetted, oblong- to linear-spathulate in outline, runcinate, lobes cartilaginous-toothed; stem-leaves few, small, at the lower forks. Heads short-pedicelled; scales with broad, white margins, the lower ones triangular, with a minute, spathulate-dilated tip; achenes scarcely compressed, 5—6-furrowed, obtuse at the tip and obtusely ribbed; pappus persistent. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. Everywhere one the commonest plant.

Local name: lusseyq (Ascherson); murreyr (Ascherson).

Also known from the other parts of the Sahara region, Spain and Arabia, Petraea.

1485. (6.) **Launaea fallax** Muscher comb. nov. — Zollikoferia fallax Boiss. Flor. Or. III, p. 824. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 613. — Microrhynchus fallax Jaub. and Spach Illustr. Flor. d'Eg., p. 106 tab. 276. — Microrhynchus arabicus Jaub. and Spach Illustr. Plant. Or., tab. 277. — A perennial plant, 30—40 cm high, loosely corymbose. Root-leaves rosetted, oblong- to linear-spathulate in outline, runcinate, lobes cartilaginous-toothed. Scales of the involucre obtuse, with broad, white margins, the lower ones triangular-ovate; achenes nearly 4-angled, the outer ones black, acutish at the tip; pappus very caducous. — Flow. March to April.

D. a. sept. Sheykh Abâde.

Also known from Arabia and Northern India.

1486. (7.) **Launaea massavensis** Muschler comb. nov. — Heterachena massavensis Fresen. in Mus. Senckenbg. III, p. 74. — Zollikoferia massavensis Boiss. Flor. Or. III, p. 825. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 654. — Lactuca massavensis Sch. Bip. in Schimp. Plant. exsicc. — Brachylaena lactucoides Anders. Flor. Aden., p. 23. — An annual plant, 30—50 cm high, or sometimes somewhat more, glabrous; stem erect, slender, fragile, leafy below, much-branched, paniculate-corymbose above. Leaves tender, runcinate into ovate, bristly-toothed lobes, the lower short-petioled, the rest sessile, broad-auricled. Pedicels filiform; lower scales of the involucre calyx-like, short, ovate, the true scales 5, five-times as long, linear; achenes obtusely 4-lobed at the base, the outer ones black, the inner ones white, nearly 4-angled; pappus persistent, longer than the achene. — Flow. December to April.

D. a. mer. Wady Etît; Wady Gadîre.

Also known from Algeria and the whole Arabia.

1487. (8.) **Launaea glomerata** Hook. Flor. Brit. Ind. III (1882), p. 415. — Zollikoferia glomerata Boiss. Flor. Or. III, p. 826. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 655. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 767. — Aschers. Flor. Rhinocol., p. 800 no. 171. — Sickenberg. Contrib. Flor. d'Eg., p. 252. — Micorhynchus glomeratus Jaub. and Spach. Illustr. Plant. Or., tab. 275. — Sonchus capitatus Syst. Plant. III, p. 680. — A biennial plant, 5 to 15 cm high or sometimes somewhat more, stems scape-like, simple or 2-forked. Basilar leaves rosetted, oblong, tapering at the base, runcinate-pinnatifid; stem-leaves 1—2 or 0. Heads nearly sessile, the terminal clustered, the lateral usually solitary; scales of involucre with a broad white margin, and a narrow, herbaceous centre. — Flow. March to April.

M. ma. M. p. N. d. O. D. l. D. i. D. a. sept. D. a. mer. Often in deep sandy places.

Local name: hudân (Ascherson); huwry (Wilkinson); huwweyt-el-kilâb (Klunzinger); helâwan; shegeret-el-libbeyne; abad: huveywa (Schweinfurth).

Also known from the other parts of the Sahara region and subtropical Arabia.

1488. (9.) **Launaea spinosa** Sch. Bip. in Webb. and Berth. Canar. II (1847), p. 428. — Zollikoferia spinosa Boiss. Flor. Or. III, p. 826. — Aschers. Desf. Illustr. Flor. d'Eg., p. 100 no. 656. — Prenanthes spinosa Forsk. Flor. aeg.-arab., p. 144. — Sonchus spinosus DC. Prodrom. VII, p. 189. — Webb. and Berth. Can. Plant., p. 125. — Lactuca spinosa Lam. Dict. III, p. 408. — Rhabdotheca spinosa Spic. Gorgon, p. 73. — A shrubby plant, 30—50 cm high, or sometimes somewhat more. Leaves linear, glaucous soon falling. Heads few, solitary, nearly sessile, oblong-cylindrical, few-flowered. — Flow. March to April.

D. a. sept. Common in the Wadies on calcarious ground.

Local name: kedâd (Forskål); zagguey (Delile); kebâd (Wilkinson, Schweinfurth).

Also known from the Canaries, Morocco, Spain, Arabia Petraea and Palestine.

616. (76.) **Sonchus** Linn.

Involucre ovoid, with imbricate bracts, and usually becoming conical after flowering. Receptacle without scales. Flowers all ligulate. Achenes flattened and striate, not beaked. Pappus of numerous fine bristles, usually soft and white. — Herbs either annual or in species not Egyptian perennial or shrubby. Leaves alternate, usually toothed or lobed. Flower-heads small or large in loose corymbs or panicles. Flowers yellow or (in species sometimes separated from the genus) blue.

A considerable genus, ranging over the temperate, regions of the northern hemisphere.

A. Annuals.
  I. Leaves runcinate-pinnatifid to lyrate . . . . 1. **S. oleraceus.**
  II. Leaves prickly-toothed . . . . . 2. **S. asper.**
B. Biennials or perennials.
  I. Achenes with retrorsely-ciliate margins . . . 3. **S. glaucescens.**
  II. Achenes with broad and thick margins.
    a) Leaves linear-oblong . . . . . 4. **S. maritimus.**
    b) Leaves oblong-lanceolate . . . . . 5. **S. arvensis.**

1489. (1.) **Sonchus oleraceus** L. Spec. Plant. I (1753), p. 116. — Boiss. Flor. Or. III, p. 795. — Rchbch. Ic. XIX, tab. 59 fig. I. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 643. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 766. — Aschers. Flor. Rhinocol., p. 800 no. 167. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 203. — Sonchus ciliatus Lam. Flor. Franc. II, p. 87. — An annual, with a rather thick hollow stem 30—60 or even 80 cm high, perfectly glabrous, except occasionally a very few stiff glandular hairs on the peduncles. Leaves thin, pinnatifid, with a broad, heart-shaped or triangular terminal lobe, bordered with irregular, pointed or prickly teeth, and a few smaller lobes or coarse teeth along the broad leafstalk; the upper leaves narrow and clasping the stem with short auricles. Flower-heads rather small, in a short corymbose panicle, sometimes almost umbellate; the involucres remarkably conical after flowering. Flowers of a pale yellow. Achenes flattened, with longitudinal ribs often marked with transverse wrinkles or asperities, the pappus of copious snow-white hairs. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. N. v. mer. O. D. l. D. i. D. a. sept. Common weed everywhere even in sandy places of the desert.

Local name: besîkh; tibsîkh (Ascherson); galâîl (Delile); qelâwîl (Ascherson); generally: libbeyn.

Everywhere common in the northern hemisphere to the Arctic regions.

1490. (2.) **Sonchus asper** Vill. Delph. III (1789), p. 158. — Boiss. Flor. Or. III, p. 796. — Sonchus fallax Wallr. Sched. Crit., p. 432. — As in the last species, except that the leaves are prickly-toothed and the achenes are broad-margined, remotely 3-nerved. — Flow. March to April.

N. d. Sidi Ssalem (G. Maire).

Also known from the whole World.

1491. (3.) **Sonchus glaucescens** Jordan. Observat. Bot. V (1847), p. 75 tab. 5. — Boiss. Flor. Or. III, p. 796. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 644. — Sickenberg. Contrib. Flor. d'Eg., p. 282. — A biennial plant, 30 cm to 1 m high or somewhat more; stems as in the last two, but often glandular-hairy above. Leaves prickly-toothed; achenes smooth, with broad, retrorsely-ciliate-margin. — Flow. March to April.

M. p. Damietta. — **N. d. N. f. N. v.** — Often on way-sides and in sandy places. — **O.** Dakhel.

Also known from Arabia Petraea, Palestine, Syria, Kurdistan and Persia

1492. (4.) **Sonchus maritimus** L. Spec. Plant. I (1753), p. 1116. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 645. — Sickenberg. Contrib. Flor. d'Eg., p. 253. — Rchbch. Ic. XIX, tab. 62. — A perennial herb, 40—60 cm high; stems hollow, simple bellow or with few branches. Leaves linear-lanceolate entire or with few, sinuate teeth. Scales of the involucre broad, obtuse, the outer ones oblong, the inner ones oblong-lanceolate; achenes with broad and thick margins, and 3-elevated ribs. — Flow. March to April.

O. Great Oasis. — **D. l.** Wady Natrun.

Local name: libbeyn.

Also known from Spain, France, Italy and other parts of North Africa.

1493. (5.) **Sonchus arvensis** L. Spec. Plant. I (1753), p, 1116. — Boiss. Flor. Or. III, p. 798. — Rchbch. Ic. XIX, tab. 61. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 767. — Rootstock creeping. Stems 30—90 cm high. Leaves long, pinnatifid or sinuate, the lobes lanceolate or triangular, more or less curved downwards, and bordered by small prickly teeth; the lower ones stalked, the upper ones clasping the stem with short, broad auricles. Flower-heads large, of a bright yellow, in loose terminal panicles; the branches, peduncles, and involucres more or les hispid with brown or black glandular hairs. Achenes striated and transversely wrinkled, with a pappus of copious, white, silky hairs. — Flow. March to April.

N. d. Menzale in rice-fields.

Also known from whole Europe.

617. (77.) **Lactuca** Linn.

Heads of numerous yellow flowers, all ligulate and fertile. Involucre campanulate; bracts herbaceous, 2—3-serial, imbricate. Receptacle flat, naked. Anthers sagittate at the base, not tailed. Style-branches terete. Achenes broad, glabrous, flattened, with a distinct beak and a long pappus of copious, soft, fine, simple hairs. — Herbs, with milky juice, alternate often compound leaves, and numerous heads in loose panicles.

A considerable genus, widely spread over the Old World and North America.

A. Heads more than 5-flowered, about 1 cm long. More or less prickly plants.
  I. Flowers palid . . . . . 1. **L. scariola.**
  II. Flowers yellow or violet-blue . . . . . 2. **L. saligna.**
B. Heads 5-flowered, less than 1 cm long . . . . . 3. **L. orientalis.**

1494. (1.) **Lactuca scariola** L. Spec. Plant. I (1753), p. 1119. — Boiss. Flor. Or. III, p. 809. — Rchbch. Ic. XIX, tab. 70. — Lactuca sylvestris Lam. Dict. III, p. 406. — Lactuca coriacea Sch. Bip. Linn. XV, p. 725. — Erect glaucescent annual or biennial, about 30—90 cm high or sometimes up to 2 m. Stem simple up to the inflorescence, usually aculeate-setose below, terete, striate above. Stem-leaves erect-patent, obovate-oblong, undivided, sinuate-toothed or runcinate, sagittate-amplexicaul, sessile, subentire or aculeate-denticulate, 2 to 9 cm long or more. Capitula 8—15 mm long, on very short pedicels, in a cyme with spreading branches. Inner involucral bracts about 8, obtuse. Flowers about 11, yellow. Achenes striate, dark brown or greyish brown, hispidulous near the top of the body, which terminates in a slender beak of nearly the same length. Pappus white or nearly so. — Flow. March to April.

N. v. N. v. mer. Cultivated and often naturalized.

Widely spread over Europe, North India etc.

1495. (2.) **Lactuca saligna** L. Spec. Plant. I (1753), p. 1119. — Boiss. Flor. Or. III, p. 810. — Jacq. Ic. Flor. Austr., tab. 250. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 99 no. 646. — Rchbch. Ic. XIX, tab. 69. — Lactuca cyanea C. Koch in Linnaea XXIII, p. 671. — Lactuca caucasica C. Koch in Linnaea XVII, p. 275. — An erect nearly glabrous glaucescent robust herb, 60—90 cm high or more. Stem terete, smooth, rigid, straight. Lower leaves pinnatifid- or sinuate-dentate; upper leaves linear-lanceolate, acute, usually undivided, margins quite entire or aculeate-denticulate, sessile, semi-amplexicaul, bi-auriculate, ranging up to 9 cm long, midrib smooth or nearly so, auricles lanceolate, acute, ranging up to 1 cm long or more, entire or denticulate. Capitula 5—8 mm long, on short or sometimes elongated bracteolate pedicels, in an elongated or diffuse cyme. Inner involucral bracts 8. Flowers 10—15, yellowish Achenes dark reddish brown, 1-ribbed on each side, terminating in a pale slender neck about as long as the body. Pappus white at base. — Flow. December to March.

N. d. N. f. N. v. D. i. D. a. sept. In waste and sandy places.

Local name: libbeyn-esh-sheykh (Forsk.): generally libbeyn.

Common in Europe and other parts of North Africa.

1496. (3.) **Lactuca orientalis** Boiss. Flor. Or. III (1875), p. 819. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 647. — Phenopus orientalis Boiss. Voy. Esp., p. 390. — A shrubby plant, 20—50 cm high or sometimes somewhat more, stems white, zigzag; branches rigid, short, prickly at the tip. Lower leaves linear-lanceolate,

pinnatifid, upper ones minute, linear, entire or with 1—2 lobes at the base, long decurrent. Heads sessile; achenes linear, obscurely beaked. — Flow. March to April.

D. a. sept. Northern and Southern Galala.

Local name: yakkhiss.

Also known from Arabia Petraea.

618. (78.) **Reichardia** Roth.

Capitula homogamous, ligulate. Involucre campanulate; bracts in many rows, imbricated; the outer ones gradually shorter, broader, scarious-margined. Receptacle flat, naked. Ligule truncate, 5-dentate at the apex. Anther-base sagittate; auricles shortly setaceous-acuminate. Style-branches slender. Achenes glabrous, oblong, subterete, 4—5-costate, transversely rugose, slightly constricted but not beaked at the apex. Pappus copiously setaceous, smooth, white, deciduous in one piece. — Erect glabrous herbs, with alternate or radical toothed or pinnatifid leaves, capitula on long peduncles, and yellow flowers.

A genus of a few species, chiefly inhabiting the Mediterranean region.

A. Ligules reddish at the outer surface . . . . . 1. **R. tingitana.**
B. Ligules pale at the outer surface . . . . . 2. **R. picroides.**

1497. (1.) **Reichardia tingitana** Roth Bot. Abhandlg. (1787), p. 35. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 657. — Picridium tingitanum Desf. Flor. Atlant. II, p. 220. — Boiss. Flor. Or. III, p. 828. — DC. Prodrom. VII, p. 182. — Reichardia tingitana var. orientalis and var. arabica Aschers. and Schweinf. Illustr. Flor. d'Eg., p. 100 no. 657. — Picridium tingitanum var. minus and var. subintegrum Boiss. Flor. Or. III, p. 828. — Scorzonera orientalis L. Spec. Plant. I, p. 1113 partly. — Picridium hispanicum Poir. Dict. XL, p. 197. — Picridium orientale DC. Prodrom. VII, p. 182. — Picridium arabicum Hochst. and Steud. in Herb. Schimp. Arab., no. 833. — Erect annual 30—60 cm high or usually more, rarely only 3—5 cm high. Leaves oblong oblong-ovate or lanceolate or the lower ones obovate, undivided or pinnatifid, usually denticulate, sessile, $2^1/_2$ to 9 cm long or the uppermost smaller, mostly cordate semiamplexicaul. Capitula 1—2 cm long. Involucral bracts broadly ovate 8—10 mm long. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. D. a. mer. R. — One of the commonest plants of Egypt.

Local name: nukd; hauwwa (Forsk., Del.); sheydeyd (Forsk.); libbeyn (Wilkinson); sadeyd (Klunzinger); dordâ (Ascherson); lubbeyn

(Ascherson); galâweyn (Ascherson); kebâoh (Schweinfurth, Muschler); kebâs; libbân.

A very variable plant, widely spread in the Mediterranean region; occurs also in Tropical Africa and N. W. India.

1498. (2.) **Reichardia picroides** (L.) Roth Bot. Abhandlg. (1787), p. 35. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 100 no. 658. — Picridium vulgane Desf. Flor. Atlant. II, p. 221. — Scorzonera picroides L. Spec. Plant., p. 1114. — Sonchus chondrilloides Sibth. and Smith Flor. graec. VIII, p. 67 tab. 791. — Picridium maritimum Rchbch. Ic. XIX, tab. 56. — A perennial plant, 40—50 cm high, or sometimes somewhat more; root bearing several stems. Lower leaves spathulate, sinuate or pinnately lobed or parted, usually toothed. Heads 1,5 cm long, peduncled; scales of the involucre with narrow, white margins, the outer ones ovate, all obtuse; ligules pale at the outer surface; outer achenes oblong, inner ones obtusely prismatic. — Flow. March to April.

M. ma. Near Alexandria.

Common in the whole Mediterranean region.

619. (79.) **Crepis** Linn.

Involucre of a single row of nearly equal bracts, with a few small outer ones. Receptacle without scales. Flowers all ligulate. Achenes oblong, cylindrical or scarcely flattened, striate, tapering at the top, but without a distinct beak. Pappus of numerous fine white soft simple bristles. — Annual or perennial herbs, usually branched. Leaves alternate or radical, mostly toothed or lobed. Flower-heads in loose irregular corymbs or panicles. Flowers yellow.

A large genus, widely distributed over the temperate regions of the northern hemisphere.

A. *Eucrepis.* — Receptacle naked.
- I. Achenes nearly similar, tip more or less tapering, not beaked.
  - a) Perennial . . . . . 1. **C. bulbosa.**
  - b) Annual . . . . . 2. **C. parviflora.**
- II. Achenes nearly alike, all or central beaked . 3. **C. radicata.**
- III. Achenes tapering or beaked, the marginal one keeled or winged at the inner face . . . . . 4. **C. aspera.**

B. *Lagoseris.* — Receptacle beset with bristles . . . 5. **C. bifida.**

1499. (1.) **Crepis bulbosa** Tausch in Flora XI (1828), I. Ergaenzbd., p. 78. — Boiss. Flor. Or. III, p. 832. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 659. — Sickenberg. Contrib. Flor. d'Eg.,

p. 252. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 207. — Leontodon bulbosum L. Spec. Plant. I, p. 1122. — Aetheorhiza bulbosa Cass. in Dict. Scienc. Natur. XLVIII, p. 425. — Rchbch. Ic. XIX, tab. 82 fig. 1. — Hieracium bulbosum Willd. Spec. Plant. III, p. 1562. — Sibth. and Smith Flor. graec., tab. 798. — A perennial plant, 20—30 cm high, or sometimes somewhat more. Leaves glabrous, fleshy oblong-oblanceolate, obtuse, somewhat toothed. Scape with one leaf and usually only one head. — Flow. March to April.

M. ma. Marmarica: Matruqa; Dakalla; Mariut; Montaza; Alexandria-West and -East; Mandara; Abukîr. — **M. p.** Rosetta; Damietta, along the sandy coast.

Local name: beyd-el-ard (Ascherson).

Common in the Mediterranean region and Europe.

1500. (2.) **Crepis parviflora** Desf. Cat., ed. I (1729) p. 88. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 660. — Crepis breviflora Del. Illustr. Flor. d'Eg., p. 72 no. 765. — Crepis muricata Sibth. and Smith Flor. graec., p. 4 tab. 807. — An annual plant, 50 cm to 1 m high, or rarely somewhat more; stem slender zigzag, dichotomous-corymbose. Lower leaves ovate-oblong, repand-toothed to runcinate; stem-leaves linear-lanceolate to linear, sagittate at base. Peduncles slender, divergent, curved; heads very small; involucre appressed-canescent, inner scales obtuse, bristly-mucronate; achenes minute. — Flow. March to April.

N. d. Rosetta; Cairo: Faqalla. — **N. f.** Fedemîm. — **O.** Little Oasis.

Also known from Syria and Asia Minor to Persia.

1501. (3.) **Crepis radicata** Forsk. Flor. aeg.-arab. (1775), p. 145. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 661. — Crepis senecioides Del. Illustr. Flor. d'Eg., p. 262 tab. 42 fig. 2. — Boiss. Flor. Or. III, p. 852. — Aschers.-Schweinf. Primit. Flor. Marmaric., p. 657 no. 208. — Barckhausia senecioides Spreng. Syst. III, p. 652. — Psammoseris senecioides Boiss. Diagnos. Plant. Or., Ser. I fasc. 11 p. 52. — An annual plant, 30—40 cm high, or sometimes somewhat more, sparingly and shortly hirsute; many stems ascendent simple or bifid, few-headed. Basilar leaves lanceolate-linear or narrow oblong, toothed or somewhat lyrately pinnatipartite; stem-leaves 1—2, linear; heads minute, subcylindrical; scales of the involucre short, the outer ones a fourth of the length of the inner ones, linear; ligules reddish at the outer surface; achenes minute, subcompressed, oblong, 10-striate, acute on both ends; pappus white, not longer than achenes. — Flow. March to April.

M. ma. M. p. N. d. N. f. N. v. O. D. l. D. i. D. a. sept. Frequent on wasty places and in the desert.

Local name: serageha; hawdân (Forsk.).

Only known from Egypt.

1502. (4.) **Crepis aspera** L. Spec. Plant. I (1753), p. 1133. — Aschers.-Schweinf. Ill. Flor. d'Eg., Supplem. p. 767. — Aschers. Flor. Rhinocol., p. 800 no. 175. — Boiss. Flor. Or. III, p. 857. — Sibth. and Smith Flor. graec. tab. 804. — Endoptera aspera DC. Prodrom. VII, p. 179. — Pterotheca aspera Rchbch. Ic. XIX tab. 77. — An annual plant, 50 cm to 1 m high or sometimes somewhat more, stems and branches very rough with rigid, prickly bristles. Leaves more or less bristly-fringed, the lower ones oblong-spathulate to oblanceolote, many-toothed; stem leaves truncate-auricled at the base, triangular-oblong; upper-leaves linear, entire. Heads 8 mm long; outer scales of the involucre ovate, scarious, small, deciduous; inner ones prickly at the back; inner achenes roughish, beak slender, twice to thrice as long as the seed. — Flow. March to April.

M. p. Gebel Ekhfên; Maqta'Rûs-es-Subyan; Sheykh Zoyêd; el-'Arîsh.

Also known from Syria and Syria.

1503. (5.) **Crepis bifida** Muschler comb. nov. — Lagoseris bifida (Vis.) Boiss. Flor. Orient. III, p. 881. — Rchbch. Ic. XIX tab. 79. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 101 no. 662. — Trichocrepis bifida Vis. Strip. Dalmat., p. 19 tab. 7. — Pterotheca bifida fichand Mey. Ind. Hort. Petrop. 1843. — Lagoseris Rireppelii Sch. Bip. Mus. Senokby, p. 52. — A dwarf perennial, shining, puberulous $2^1/_2$—10 cm high. Radical leaves numerous, forming a rosette, oblanceolate, mostly rounded at the apex, denticulate, attenuate at the base, subpetiolate, 1—6 cm long. Capitula 8—10 mm long, on pedicels ranging up to 6 cm in pedunculate lax open cymes. Inner involucral bracts 8, narrowly lanceolate, puberulous with small gland-tipped hairs, hispidulous on the keel which is thickened in fruit; outer narrower, shorter. Achenes 5 mm long, costate, attenuate at the apex into a beak. Pappus 4 cm long, nearly white. — Flow. March to April.

M. p. Bîr-Abû-Mezrû'. — **D. a. sept.** Wady Rished near Helwân; Northern and Southern Galala.

Also known from Greece, Arabia Petraea, Palestine, Syria and Asia Minor.

Appendix I.

Botanical Discovery in Egypt.

The history of botanical discovery in Egypt falls conveniently into two periods. The first commences with the year 1761, in which Forskål made his first visit, and closes with the year 1867, in which Ascherson and Schweinfurth published their: "*Aufzählung sämtlicher zurzeit bekannten Phanerogamen und Gefäßkryptogamen aus dem Gesamtgebiete der Nilländer*" [1]). During the hundred and six years comprised between these dates, many voyages of discovery or survey in Egypt were undertaken by many botanists. This period may therefore be appropriately called the period of investigation by visitors from abroad. That period extending from 1865 to the present time can be just as correctly styled the period of naturalists resident longtimes in Egyt.

Commencing with the voyages the first in order of time, as well as in degree of importance, is Forskål's visit (1761—1762). The natural-history collections contained a large amount of material. The "*Flora aegyptiaco-arabica*" which has been published after his death, contained in the descriptions many new species, illustrated by few plates.

In 1798 an expedition under the command of Napoleon I. arrived Egypt. The expedition visited the wholy country, when Delile, who acted botanist, made a splendid collection of plants. The official record of the voyage, which appeared under the title of "*Description de l'Egypt*" contains a folio Atlas of botanical plates (*"Flore d'Egypte"*) and one volume of descriptive matter (*"Florae aegyptiacae Illustratio"*).

The following years subsequent to the publication of the "*Description de l'Egypt*" formed a period of great activity in botanical research in Egypt, such as *Caillaud, Sieber, Hemprich and Ehrenberg, Sacho, Brocchi, Acerbi* [2]), *Aucher Eloy, Bové, Schimper and Kotschy.*

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[1]) Schweinfurth: Beitrag zur Flora Aethiopiens. — Berlin, Reimer 1867.

[2]) His collections has studied and published *Visiani:* Plantae Aegypti ac Nubiae and Icones Plantarum quarund. Aegypti ac Nubiae. — Pataviis 1836.

Figari-Bey was originally a disciple of *Viviani* and first became known as botanist from the collections he made during thirty years in Egypt [1]). He collected in most parts of Egypt, transmitting copious suites of specimens to Paris, where they constituted a large part of the material to the *Fragmenta Florulae Aethiopico-Aegyptiacae* [2]) of Baker Webb published after the author's death.

In 1846 *Edmond Boissier*, the well-known botanist of the Orient, visited Egypt. Some years ago *Samartini* and *Kotschy* have botanized in several parts of both Under- and Upper-Egypt, making several interesting discoveries.

In 1867 appeared *Schweinfurth's: Beiträge zur Flora Aethiopiens*, containing the "*Aufzählung sämtlicher zur Zeit bekannten Phanerogamen und Gefäßkryptogamen aus dem Gesamtgebiete der Nilländer*" by Ascherson & Schweinfurth. In preparation of their following Standard-work, in addition to using their own collections, they had the privilege of examining all the other collections, made by *Pfund*, *Klunzinger*, *Sickenberger*, *Cramer*, *Heuser and Suermondt*, *Volkens*, *Deflers*, *Gaillardot*, *Schneider* and *Hurst*. The number of persons who have collected plants or published memoirs relating Egypt botany during the following years which have elapsed since the publication of "*Beiträge z. Flora Aethiopiens*" is not so large that I canmot allude to the chief workers here: Schweinfurth [3]), Klunzinger [4]), Comes [5]), Barbey [6]), Schneider [7]) and Hort [8]).

Finally in 1887 *Ascherson* and *Schweinfurth* published their "*Illustration de la Flore d'Egypt*". This publication gave an immense impetus tho the study of the indigenous vegetation and it must always remain the foundation for future systematic work on botany of Egypt. For the first time the student was provided with an account of the flora characterized by accuracy of detail, and prepared by botanists who had not only studied and collected the largest proportion of the species in their native habitats, but whose position

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[1]) Studi scientifici sull'Egitto. — 1850.

[2]) Parisiis 1854.

[3]) Ausflüge um Kosseïr, Brief an Dr. Kotschy. — Wien 1865.

[4]) Die Vegetation der aeg.-arab. Wüste bei Koseïr (Zeitschr. Gesellsch. für Erdkde zu Berlin XIII, 1878 p. 432—462).

[5]) Catologo delle piante raccolte dal Professore A. Costa in Egitto e Palestine nel 1874. — Napoli 1880.

[6]) Herborisation au Levant. — Lausanne 1882.

[7]) Über die Flora der Wüste um Ramleh. (Sitzber. Gesellsch. Isis zu Dresden, 1871 p. 152—161).

[8]) List of Desert Plants collected at Ramleh near Alexandria, Egypt. (Mém. Litt. and Phil. Soc. Manchester, Ser. III Vol. VI 1878 p. 151—156). — List of Leguminosae observed growing near the Egyptian Sea-Shore, West of Rosetta (l. c. VII, 1880 p. 53—65).

gave them ample opportunities of examining the material upon which the publications of their prodecessors were founded. Under such adventages, the synonyms and false species incorrectly included by previous writers dissapeared, and the Flora assumed more of its real proportions and extent. Altogether the Flora contanied 1215 species. The value of the work is much enchanced by the Introductory Essay dealing with the affinities and distribution of the species.

In the same year published *Volkens* his well-known work: *"Die Flora der aegyptisch-arabischen Wüste auf Grundlage anatomisch-physiologischer Forschungen"*. The title of this work is as unsuitable as misdirecting. Above all it is not a Flora, believing that the main object of such a work is to afford a ready means of determining the name of any species for the purpose of ulterior study. It deserves special mention on account of being the first attempt to prepare an account of the Egyptian Flora from an oecological standpoint.

Since 1889 by far the most important contributions to our knowledge of the Egyptian Flora have been made by Professor *Sickenberger* and I regret that only brief mention can be made of his work here. In his *"Contributions à la Flore d'Egypte"* (published ofter his death by Deflers) he describes with considerable details of the Flora of this beautiful country. Firstly he attempt te prepare a *"Cryptogamic Flora of Egypt"*, except the algae which have been published by myself in the "Mémoires de l'Institut égyptien V (1908) as: Enumération des Algues marines et d'eau douce observées jusqu'à ce jour en Egypte". In 1909 the Rear Admiral *Blomfield* published an interesting memoir: "Wild flowers around Alexandria" (in Bull. Alexandria Hortic. Society p. 1—16).

Appendix II.

Phytogeography and Geology.

"Egypt is the gift of the Nile"
Herodotus.

The Nile, which created the valley home of the early Egyptians, rises three degrees south of the equator, and flowing into the Mediterranean at over thirty one and a half degrees north latitude, it attains a length of some four thousand miles, and vies with the greatest rivers of the world in length, if not in volume. In its upper course the river, emerging from the lakes of equatorial Africa, is known as the White Nile. Just south of north latitude sixteen at Khartum, about thirteen hundred and fifty miles from the sea, it receives from the east an affluent known as the Blue Nile, which is a considerable mountain torrent, rising in the lofty highlands of Abyssinia. One hundred and forty miles below the union of the two Niles the stream is joined by its only other tributary, the Atbara, which is a freshet not unlike the Blue Nile. It is at Khartum, or just below it, that the river enters the table land of Nubian sandstone, underlying the Great Sahara. Here it winds on its tortuous course between the desert hills, where it returns upon itself, often flowing due south, until after it has finally pushed through to the north, its course describes a vast S.

In six different places throughout this region the current has hitherto failed to erode a perfect channel through the stubborn stone, and these extended interruptions, where the rocks are piled in scattered and irregular masses in the stream, are known as the cataracts of the Nile. These rocks interfere with navigation most seriously in the region of the first, second and fourth cataracts; otherwise the river is navigable almost throughout its entire course. At Elephantine it passes the granite barrier which there thrusts up its rough shoulder, forming the first cataract, and thence emerges upon an unobstructed course to the sea.

It is the valley below the first cataract which constituted Egypt proper. The reason for the change which here gives the river a free

course is the disappearance of the sandstone, sixty eight miles below the cataract, at Edfu, where the nummulitic limestone which forms the northern desert plateau, offers the stream an easier task in the erosion of its bed. It has thus produced a vast cañon, cut across the eastern end of the Sahara to the northern sea. From cliff to cliff, the valley varies in width, from ten or twelve, to some thirty one miles. The floor of the cañon is covered with black, alluvial deposits, through which the river winds northward. It cuts a deep channel through the alluvium, flowing with a speed of about three miles an hour; in width it only twice attains a maximum of eleven hundred yards. So far its course is the same as in old times, but a considerable change now takes place; for whereas formerly it discharged itself into the sea by seven mouths, at the present day these are reduced to two. The point of separation, which constitutes the apex at the Delta, has remained about the same. Its ancient name appears to have been Cercasorus, the modern representative of which may be placed at a point opposite Shubra. Here the river anciently divided into three branches, the Pelusiac, running East, the Kanopicrunning West and the Sebennytic which flowed between these two, continuing in deed the general northward direction hitherto taken by the Nil and piercing the Delta through the centre. From this Sebennytic branch two others were derived, the Tanitic and the Mendesian, both of which emptied themselves between it and the Pelusiac branch. The lower parts of the remaining two branches, the Bolbitine and the Phatmitie, were artificial, and were constructed probably when the other outlets began to dry up. It is by these two mouths that the river at the present day finds its outlet. At the point of bifurcation the general direction of the two streams is probably that of the old Pelusiac and Kanopic branches, but they gradually quit the extreme E. and W. course, and continue more in the centre of the Delta, the one to Damietta, and the other to Rosetta, from which places they derive their modern appellations.

Phytogeographically Egypt belongs to the "North African-Indian-Desert Province". The part on the western side of the Nile belongs to Engler's[1]) "Province of the Great Sahara", that on the eastern side of the Nile formed the "Egyptian-Arabian Province". No more striking contrast can be imagined than that between the intensely cultivated Valley of the Nile and the barren deserts on either side. In citing the several localities for each species, it has appeared expedient to arrange them under five phytogeogravical regions, into which the large area embraced by this Flora has been divided[2]). These are:

[1]) Engler: Syllabus der Pflanzenfamilien, ed. VI (1909) p. 224.
[2]) Ascherson-Schweinfurth: Illustration de la Flore d'Egypt (1887) p. 32.

I. **Mediterranean-Region.** **(M.)** including under this term the Coast region from Marmarica to El-ʿArîsh, the sandy foreshore between the alluvial soil and the Sea. This region is divided into two parts, an western **(M. ma.)** marmaric subregion, which extends from Marmarica to Abukîr, and an eastern pelusiac subregion **(M. p.)** which extends from Abukîr to El-ʿArîsh.

II. **Nile-Delta-Region.** **(N.)** comprises the cultivable land. This region is divided into four subregions. These are:

1. The **Nile-Delta (N. d.)** which is 100 miles broad at its Mediterranean base, but narrows to about 10 miles at its head below Cairo.
2. **The Fayûm (N. f.)** the quasi-oasis, on the left bank of the river, which measures about 30 miles from North to South, and 40 miles from East to West.
3. **The narrower alluvial Nile-Valley (N. v.)** the alluvial soil from Cairo to Aswân, called by the Arabs Er-Rîf.
4. **The narrower rocky Nile-Valley (N. v. mer.)** not alluvial but rocky ground.

III. **Oases of the Libyan Desert.** **(O.)**

1. Siwa.
2. Little Oasis.
3. Farâfra.
4. Dakhel.
5. Great Oasis.

IV. **Desert Region.** **(D.)** This region is divided into four subregions; these are:

1. W. of the Nile. 1. **Libyan Desert.** **(D. l.)**
2. E. of the Nile. 2. **Isthmic Desert.** **(D. i.)** — Extends from the Mediterranean-Seashores and the eastern limits of Egypt to the Wady Tumilât.
3. **Northern Arabian-Desert.** **(D. a. sept.).** — Extends from Wady Tumilât to the Kene-Qoseyr-Road.
4. **Southern Arabian-Desert.** **(D. a. mer.).** — Extends from the Kene-Qoseyr road to the Southern limits of Egypt.

V. **Red-Sea-Region.** **(R.)** — The sea-shores along the Red-Sea.

With these remarks on the general botany of Egypt, we will proceed to the consideration of each of the five regions above indicaded.

I. Mediterranean-Region.

From whicheyer side it is approached the coast of Egypt is so exceedingly low that the highest parts only begin to be seen at the

distance of about 18 miles and the line of the coast itself is not discernible till within 13 or 14 miles. Within the area no rock appears except the limestone of Alexandria which forms a low ridge in this part of the coast and extends westwards as a low line of hills parallel to the shore. East of Abukîr it does not appear and the rest of the coast is formed of fine sand brought down partly by the Nile, on which are sand duwes formed by the northerly winds. The climatic conditions present two types since in winter those of the Mediterranean province extend over the whole of it, while in summer the Saharan type predominates except in a comperatively narrow belt near the coast[1]). The rainfall is heavy and a valuable crop of barley is cultivated by the Arabs on the belt of country lying near the shore of the Mediterranean and the ruins of numerous cisterns, dams and other ancient buildings show how extensively cultivation was formerly carried on by artificially storing the winter rainfall.

Althoug interesting plants may be found in flower or fruit at nearly all seasons of the year, the flowering one par excellence may be said to begin at the end of December after the autumn and winter rains; the precocity and abundance of desert flowers naturally depends on whether the rains have begun early (November) and on the amount which has fallen, the average rainfall being a little under 22,5 cm. Among the earliest species in flower is the desert saffron *(Colchicum Ritchii)* very abundant. In the same localities and season (January) we see patches of sand covered with the "monk's-cowl arum" *(Arisarum vulgare* var. *Veslingii)* striped with white green and purple, and, less commonly the *Biarum Olivieri* with narrow wavy leaves. At the same time appears on the sand *Malcolmia pygmaea. Narzissus Tazetta* is tolerably plentiful on the Lake side of the Khedivial railway[2]). On the sea-side the crown-anemone is still more abundant. At the end of January the fragment dwarf stock *(Matthiola acaulis)* begins to cover the waysides both E. and W. of the area. A. little later the ice plant, *Mesembryanthemum crystallinum* covers portions of the desert and open their-starry white flowers at noon. By the first weak in March the desert is already becoming gay with annuals amongst the earliest of which is the ubiquitous little *Trigonella maritima.* One of the most showy desert plants occasionally found by the seashore, parasitic on the roots of the goosefoot family is the "golden broom rape" (Cistanche lutea) with dense clusters of large snapdragon like flowers of a

[1]) Lyons: The physiography of the River Nile and its basin. — Cairo 1906.
[2]) Blomfield: Wild Flowers around Alexandria in Bull. Alexandria Hortic. Soc. (1909) p. 4.

lemon-yellow colour, highly ornamental. *Allium roseum* and *Muscari comosum* adorn every barley field with the common poppies *(Papaver rhoeas)*. Quite a feature in the Mariut Flora is the handsome *Phlomis fruticosa* with soft leaves and whorls of large yellow flowers, whilst a beautiful blue corn *(Centaurea crupinoides)* is occasionally to be met with. A not uncommon and interesting plant of "bean-caper family" is a creeper, *Fagonia cretica* with intricately branched trefoil leaves, prickly stipules and pretty purple flowers of the size of a half piastre. A prostrate woolly annual, *Neurada procumbens* with solitary flowers and curious fleshy fruit, which for long puzzled scientific botanists as to what order it should be placed in and has at length been included among *Rosaceae,* with which family the amateur would not dream of associating it, is not uncommon. The interesting *Helicophyllum crassipes* with a deep-purple spathe and large pedate roots is frequent at Mex and Mariut; the roots are eaten like potatoes, by the Bedouins.

The following list of plants[1]) will represent the distribution of the most characteristic species of the area in the two subregions. Those marked by an † are typical marmaric-cyrenaic species those marked by an asterisk are common in the region.

M. ma.

Anemone coronaria.
* Adonis microcarpus.
Ranunculus asiaticus.
Ranuculus muricatus.
* Delphinium nanum.
Papaver dubium.
* „ hybridum.
„ Argemone.
Roemeria hybrida.
Glaucium corniculatum.
Matthiola acaulis.
Biscutella apula.
Lepidium Draba.
Erucaria aleppica.
† Moricandia suffruticosa.
* Enarthrocarpus strangulatus.
† „ pterocarpus.
Helianthemum vesicarium.
Fumana glutinosa.
Silene cerastioides.
„ colorata.
Polycarpon alsinifolium.
Loeflingia hispanica.
Paronychia capitata.
„ argentea.
Malva aegyptiaca.
Erodium ciconium.
Tetradiclis salsa.
Argyrolobium uniflorum.
†* Ononis vaginalis.
„ sicula.
Trigonella monspeliaca.
* „ maritima.
† „ Aschersoniana.
Medicago orbicularis.
„ tuberculata.
„ coronata.
„ arabica.
Trifolium stellatum.
„ formosum.
Hymenocarpus nummularis.
*† Lotus argenteus.
* „ creticus.
„ ornithopodioides.
„ edulis.
Tetranoglobus palaestinus.
Hippocrepis unisiliquosa.
„ multisiliquosa.
† Astragalus radiatus.
„ hispidulus.

[1]) Lists of all Egyptian plants showing their whole distribution see Appendix III.

Astragalus baeticus.
„ trigonus.
Onobrychis Crista galli.
„ Gaertneriana.
Lathyrus marmoratus.
Umbilicus horizontalis.
Eryngium campestre.
Crithmum maritimum.
Caucalis tenella.
† Crucianella herbacea.
† Galium Columella.
Vaillantia hispida.
† Varthemia candicans.
Helichrysum siculum.
Evax contracta.
Phagnalon rupestre.
† Filago mareotica.
Anthemis arvensis.
Atracyclus alexandrinus.
Calendula palaestina.
Carlina involucrata.
Aractylis cancellata.
† Cynara Sibthorpiana.
Onopordon Sibthorpianum.
†* Centaurea alexandrina.
†* „ dimorpha.
„ Duriaei.
„ pumila.
Melanoloma pullatum.
Carthamus mareoticus.
† Hyoseris lucida.
Hedysaris rhagadioloides.
† Thrincia tripolitana.
Coris monspeliensis.
† Periploca laevigata.
Cuscuta planiflora.
Anchusa undulata.
Nonnea Vivianii.
Lithospermum avense.
„ tenuiflorum.
Verbascum Letourneuxii.
Linaria micrantha.
Thymus capitatus.
Micromeria nervosa.
† Phlomis floccosa.
Statice Thouini.
† „ tubiflora.
† Plantago phaeostoma.
Chenopodium ficifolium.
Atriplex crystallinum.
Haloxylon articulatum.
Polygonum aviculare.
„ maritimum.
Euphorbia Peplis.
„ peploides.
„ punctata.
Cymodocea nodosa.
* Arisarum vulgare var. Veslingii.
Gladiolus segetum.
Pancratium maritimum.
†* Colchicum Ritchii.
Allium sphaerocephalum.
„ curtum.
„ myrianthum.
*† „ Erdelii.
* „ roseum.
† „ Aschersoniarum.
Muscari bicolor.
„ racemosum.
„ Letourneuxii.
Stupa gigantea.
Triplachne nitens.
Calamagrostis arenaria.
Weingaertneria articulata.
Trisetum glumaceum.
Ammochloa palaestina.
Lamarckia aurea.
Cynosurus coloratus.
Dactylis glomerata.
Aegilops ovata.
„ longissima.
Elymus geniculatus.

M. p. Those marked by an asterisk are typical plants of Sinai or Syria.

Hypecoum parviflorum.
Helianthemum salicifolium.
Astragalus trimestris.
† „ sparsus.
„ tomentosus.
„ camelorum.
Lathyrus amoenus.
† Galium nigricans.
Anthemis microsperma.
† Linaria floribunda.
† „ ascalonica.
Statice Limonium.
Plantago Bellardii.
Zostera nana.
† Helicophyllum crassipes.
† Iris Helenae.
Tulipa montana.
† Allium papillare.
Cyperus compressus.
Carex stenophylla.
„ extensa.
Polypogon maritimus.

II. Nile-Delta-Region.

a) N. d.

We now come to the Delta of the Nile, the last stage of the river Nile where its bed is eroded down to and even below the base level the sea, and where under conditions, deposition is at its maximum[1]). It may be conveniently considered to begin below Cairo, and although to-day the first bifurcation takes places at the Delta-Barrage, 26 kilometres down-stream, it is certain, that in earlier times an important branch took off about 7 kilometres below Cairo which supplied the ancient Pelusiac and Tanitic arms. In modern times so much has been done in the canalization of the Delta that it is difficult to distinguish with certainity between river arms and artifical canals, especially as an existing water-way include lengths of both in its course.

The Nile-Delta measures about 250 kilometres from Mex, to the west of Alexandria, to the shore of lake Menzale a little to the east of Port Said, and about 175 kilometres from Cairo on the south to Brullus light-house on the north covering an area of about 23,900 square kilometres, including the lakes of Mariut, Edku, Brullus and Menzale, the small lake of Abukîr having been now entirely reclaimed. The approximate areas of the lakes are:

Lake Mariut	290	square kilometres.
Lake Edku	270	
Lake Brullus	690	
Lake Menzale	1930	

Within the area of the Delta no rock appears except the limestone of Alexandria, the rest of the Delta is formed of the alluvial mud and fine sand brought down by the Nile. The alluvial mud and sand of the Delta rests upon a thick deposit of yellow quartz sands of varying coarness which include also layers of gravel masses of stiff clay. The thickness of the Nile mud varies considerably from point to point. The following table gives the thickness of it as found in recent well borings[2]).

Place	Thickness of Nile mud metres	Depth bored to metres	Place	Thickness of Nile mud metres	Depth bored to metres
Shamarka (Kafr el Sheykh) . .	17	42	Zagaziq	2	104
Simbellawein	5	9	Zaqaziq	13	35
			Qalyub	12,5	52

[1]) Lyons: The Physiography of the River Nile and its basin. — Cairo 1906.
[2]) Boring made by the Royal Geographical Society.

Place	Thickness of Nile mud metres	Depth bored to metres	Place	Thickness of Nile mud metres	Depth bored to metres
Benha-el-'Asl	17	37	Sohag	17	40
Cairo (Rod el Farag) .	17	60	Tanta	8	—
Giza	20	38	Mehallet Roh	9	—
Gezira (Cairo)	8	36	Samanud	12	—
Beni-Suef	10	204	Kasr-el-Nil	15	—
Beni-Suef (Hospital) .	11	—	Helwân, river bank .	19	44
Tahta	14	29	Luksor	15	30

The climatic conditions of the Delta present two types since in winter those of the Mediterranean province extend over the whole of it, while in summer the Saharan type predominates except in a comparatively narrow belt near the coast. Observations are not numerous and Alexandria and Port Said on the north, and Cairo on the south furnish the only series of any length. The passage from the moister conditions of the cultivated area to the aridity of the desert is shown by Ismailia and Suez on the east and a short series from Wady Natrum on the west.

Mean Temperature Centigrade[1]).

Place	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Alexandria	14.2	15.5	17.0	19.2	21.9	24.3	26.2	26.9	25.9	24.1	19.9	16.2	20.9
Port Said[2])	14.0	15.3	16.9	19.1	22.0	24.7	27.0	27.6	26.5	24.9	20.3	16.1	21.2
Ismailia[2]) .	13.2	15.2	17.5	20.8	23.9	26.5	28.5	28.3	26.1	23.8	18.7	15.1	21.5
Suez[2]) . .	13.6	15.5	18.0	21.7	25.3	27.6	29.4	29.2	27.1	24.8	19.1	15.4	22.2
Cairo . . .	12.3	13.8	16.9	21.2	24.8	27.9	28.6	28.1	25.6	23.6	18.9	14.8	21.4

Relative Humidity per Cent (8 or 9 a. m.)[1]).

Place	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Alexandria	64	62	61	60	60	64	67	64	63	64	61	66	63
Port Said .	79	78	74	72	71	72	75	74	74	76	75	80	75
Ismailia . .	84	80	75	70	71	74	77	80	80	82	83	84	78
Suez . . .	76	74	70	65	64	66	70	74	75	77	18	76	72
Cairo . . .	72	70	71	54	50	53	61	67	68	72	72	74	64

[1]) Lyons: The Physiography of the River Nile and its Basin. — Cairo 1906.
[2]) $\frac{\text{Maximum} + \text{minimum}}{2}$

Relative Humidity per Cent (2 or 3 p. m.)[1]).

Place	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Alexandria	54	52	51	53	56	60	61	58	56	58	55	58	56
Port Said .	65	62	59	59	60	62	64	63	62	64	63	66	62
Ismailia . .	49	43	38	32	30	30	32	34	40	42	47	51	39
Suez . . .	40	35	32	27	25	24	27	28	30	34	38	41	32
Cairo . . .	48	43	34	30	27	27	29	32	39	41	44	49	36

Vapour Tension Millimetres (8 or 9 a. m.)[1]).

Place	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Alexandria	7.4	7.6	8.3	9.8	12.0	15.3	17.7	17.4	16.0	14.7	11.2	8.7	12.2
Cairo . . .	7.0	7.5	8.2	9.1	10.7	13.2	15.9	16.8	15.8	14.6	10.7	8.5	11.5

Vapour Tension Millimetres (2 or 3 p. m.)[1]).

Place	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Alexandria	7.5	7.6	8.3	9.9	12.4	15.6	18.1	17.7	16.1	14.6	10.8	8.8	12.3
Cairo . . .	7.0	6.9	7.1	7.6	8.8	10.4	11.5	12.7	13.1	12.2	9.6	8.1	9.5

The rainfall is light and is not of much importance in most parts except that near Alexandria the winter rainfall is counted upon to some extent to supply a certain amount of water while the supply canals are temporarly closed for cleaning. To the west of Alexandria the rainfall is heavier and a valuable crop of barley is cultivated by the Arabs on the belt of country lying near the shore of the Mediterranean.

The quantity of rain wich has been recorded in each month at Alexandria, Port Said, Ismailia and Suez is given here.

Monthly rainfall in Millimetres[2]).

Alexandria.

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1879 . . .	16	13	22	1	0	0	0	0	0	0	0	34	86
1880 . . .	50	28	17	3	3	0	0	0	1	1	66	62	270
1881 . . .	1	22	16	1	0	0	0	0	—	—	—	—	172

[1]) Lyons: The Physiography of the River Nile and its Basin. — Cairo 1906.
[2]) Piroma in Met. Zeitg. (1884), p. 34 and (1897), p. 377.

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1882 . . .	85	70	5	22	1	0	0	0	5	17	94	15	183
1883 . . .	60	49	0	0	1	0	0	0	2	7	28	34	240
1884 . . .	183	48	0	0	0	0	0	0	13	0	30	56	303
1885 . . .	106	10	6	11	1	0	0	0	25	0	0	38	232
1886 . . .	1	21	6	0	0	0	0	0	0	0	4	37	92
1887 . . .	98	34	6	3	13	0	0	0	0	1	51	99	182
1888 . . .	68	46	0	3	0	0	0	0	0	0	63	84	281
1889 . . .	64	38	4	2	0	0	0	0	0	0	90	60	255
1890 . . .	70	3	7	4	0	0	0	0	12	0	0	48	234
1891 . . .	50	44	29	0	0	0	0	0	0	8	99	26	183
1892 . . .	59	8	14	0	0	0	0	0	0	7	13	98	214
1893 . . .	80	19	47	0	0	0	0	0	0	0	96	26	204
1894 . . .	48	9	34	0	4	0	0	0	0	0	16	87	217
1895 . . .	0	1	1	9	0	0	0	0	0	0	47	33	114
1896 . . .	52	24	11	1	0	0	0	0	0	0	47	33	816
Mean . .	56	34	19	3	1	0	0	0	2	7	40	54	216

Monthly rainfall in Millimetres.

Port-Said.

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1886 . . .	56	7	20	7	0	0	0	0	0	1	1	2	94
1887 . . .	22	19	2	0	0	0	0	0	0	0	13	6	62
1888 . . .	50	0	0	1	0	6	0	0	0	0	15	19	91
1889 . . .	8	11	3	0	0	0	0	0	1	0	1	3	27
1890 . . .	29	0	21	25	0	0	0	0	0	0	9	12	96
1891 . . .	24	14	4	1	0	0	0	0	0	0	3	61	107
1892 . . .	16	1	12	2	0	0	0	0	0	2	25	9	67
1893 . . .	16	2	40	10	2	0	0	0	0	21	3	89	183
1894 . . .	10	18	16	0	0	0	0	0	0	0	52	2	98
1895 . . .	4	3	2	20	0	0	0	0	0	0	9	11	49
1896 . . .	18	31	14	3	9	0	0	0	0	2	12	4	93
1897 . . .	16	7	13	0	2	0	0	0	0	0	28	64	130
1898 . . .	0	6	8	0	0	0	0	0	0	0	43	11	74
1899 . . .	5	4	0	0	0	0	0	0	0	2	3	15	29
1900 . . .	10	32	0	0	0	0	0	0	0	0	2	23	67
1901 . . .	34	0	0	0	1	0	0	0	0	0	17	38	90
1902 . . .	14	5	7	9	0	0	0	0	0	1	7	9	52
1903 . . .	29	12	10	0	0	0	0	0	2	0	2	2	57
1904 . . .	28	12	1	21	6	0	0	0	0	4	8	37	117
1905 . . .	24	2	22	0	0	0	0	0	0	3	0	45	96
Mean . .	21	9	10	5	1	0	0	0	0	2	13	23	84

Monthly rainfall in Millimetres.

Ismailia.

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1886 . . .	16	3	5	2	4	0	0	0	0	0	2	11	43
1887 . . .	12	6	5	6	12	0	0	0	0	0	0	6	47
1888 . . .	17	16	0	14	19	0	0	0	0	1	5	11	83
1889 . . .	18	2	1	0	0	0	0	0	0	0	0	1	23
1890 . . .	28	4	20	6	0	0	0	0	0	0	1	14	73
1891 . . .	13	9	8	0	0	0	0	0	0	44	0	23	97
1892 . . .	3	0	0	0	0	0	0	0	0	0	8	2	13
1893 . . .	22	2	19	0	0	0	0	0	0	1	2	32	78
1894 . . .	3	14	2	0	1	0	0	0	0	0	13	3	35
1895 . . .	1	0	2	28	7	0	0	0	0	0	40	2	80
1896 . . .	7	4	6	1	3	0	0	0	0	0	0	3	24
1897 . . .	8	0	7	0	1	0	0	0	0	0	13	3	32
1898 . . .	3	1	2	0	0	0	0	0	0	0	10	10	36
1899 . . .	2	10	3	0	0	0	0	0	0	4	6	13	38
1900 . . .	9	26	0	0	0	0	0	0	0	0	0	36	71
1901 . . .	7	0	0	0	10	2	0	0	0	0	0	6	25
1902 . . .	6	4	6	0	0	0	0	0	0	0	4	0	20
1903 . . .	4	1	11	0	0	0	0	0	1	0	0	20	87
1904 . . .	20	12	0	4	0	0	0	0	0	0	2	15	53
Mean . .	10	6	5	3	3	0	0	0	0	3	6	11	47

Monthly rainfall in Millimetres.

Port-Tewfik (Suez).

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1886 . . .	—	—	—	—	—	—	—	—	—	—	—	8	[8]
1887 . . .	3	0	4	10	0	0	0	0	0	0	0	0	17
1888 . . .	0	4	9	4	1	0	0	0	0	0	0	0	18
1889 . . .	28	0	1	0	1	0	0	0	0	0	0	7	37
1890 . . .	15	3	6	2	0	0	0	0	0	0	0	2	28
1891 . . .	18	0	0	0	0	0	0	0	0	0	0	9	27
1892 . . .	0	0	0	0	1	0	0	0	0	0	0	0	1
1893 . . .	12	0	0	0	0	0	0	0	0	0	0	12	24
1894 . . .	0	8	1	0	0	0	0	0	0	0	4	0	13
1895 . . .	0	0	2	7	0	0	0	0	0	0	2	0	11
1896 . . .	4	1	6	0	3	0	0	0	0	0	0	0	14
1897 . . .	0	0	0	0	0	0	0	0	0	0	2	0	2
1898 . . .	5	0	10	0	0	0	0	0	0	0	3	6	24

Date	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
1899 . . .	2	0	2	0	0	0	0	0	0	0	0	0	4
1900 . . .	0	18	1	0	0	0	0	0	0	0	0	9	28
1901 . . .	3	0	0	0	8	0	0	0	0	0	0	0	11
1902 . . .	8	11	1	0	0	0	0	0	0	3	2	0	25
1903 . . .	1	0	0	0	0	0	0	0	0	0	0	24	25
1904 . . .	17	14	0	7	0	0	0	0	0	0	0	10	48
1905 . . .	18	1	0	5	0	0	0	0	0	0	0	0	24
Mean . .	7	3	1	1	0	0	0	0	0	0	0	4	16

It has been persistently stated that the improved irrigation of recent years in Egypt and the consequent extension of cultivation had modified the climate, rendering it cooler in summer, colder in winter and increasing the humidity and rainfall. The principal change which has taken place in agriculture is the great development of summer cultivation before the arrival of the flood, which has been rendered possible by the repair of the Delta Barrage and by the construction of the Zifta and Assiut Barrages and the Aswân dam.

The following table may shown the few species belonging only to our subregion **(N. d.)**; those marked by a †are known from Tropical Africa or Asia, those with an asterisk are common in the region.

Ranunculus trachycarpus.
Lepidium Aucheri.
Silene conoidea.
Elatine campylosperma.
† Bergia aquatica.
Abutilon Avicennae.
Medicago elegans.
T. fragiferum.
Astragalus contortiplicatus.
Lathyrus dispermus.
„ annuus.
Lythrum flexuosum.
† Ammania senegalensis.
† Ceratophyllum muricatum.
Berula angustifolia.
Ammi Copticum.
Torilis infesta.
† Sphaeranthus suaveolens.
Anthemis Cotula.
Matricaria Chamomilla.
Carthamus Creticus.
† Sphenoclea Zeylanica.
†* Utricularia inflexa.
† Utricularia stellaris.
Linaria spuria.
Eufragia viscosa.
Orobanche pubescens.
Suaeda splendens.
Albersia Blitum.
† Alternanthera sessilis.
† Polygonum senegalense.
* Alisma arcuatum.
Damasonium Bourgaei.
Potamogeton natans.
„ lucens.
Spirodela polyrrhiza.
† Cyperus bulbosus.
Scirpus parvulus
„ mucronatus.
† Panicum obtusifolium.
† „ prostratum.
† „ muticum.
„ leiogonum.
„ viride.
Hemarthria fasciculata.
† Dinaeba retroflexa.

b) The Fayûm (N. f.)[1]).

The Fayûm, a large circular depression in the Libyan Desert, is situated immediately west of that part of the Nile Valley lying between Kafr-el-Ayat and Feshn. The depression, which has an area, roughly speaking, of 12000 square kilometres, is primarily divisible into three distinct parts: cultivated, lake, and desert. The cultivated land has an area of about 1800 square kilometres and, with the exception of the lake and part of the Wady Rayân, occupies the lowest part of the depression. Cultivation is necessarily strictly limited to the area covered with alluvial soil. The cultivated land of the Fayûm is directly connected with that of the Nile Valley by a narrow strip of low ground, a natural passage through the desert separating the Nile Valley and the depression of the Fayûm. Through this gap runs the natural canal known as the Bahr Yussuf, which is practically the sole source of water in the Fayûm and irrigates the entire district[2]).

The cultivated land of the Fayûm is traversed by two main ravines, cut down in many places to the Eocene limestone below the alluvium. At the present time these ravines carry canals for irrigating the lower parts of the district, and also act largely as drains to the higher lands. In addition to the main central cultivated area, the soil of which, as mentioned above, is essentially identical with that of the Nile Valley, large tracts of the surrounding counntry, more especially on the north, north-west, and west sides, are also covered with alluvial deposits. These latter, which include sands, sandy clays, and clays of a quite distinct type, represent the slowly formed accumulations of the quieter and more remote parts of the acient Lake Moeris. The material was mostly derived from the Eocene strata which formed the shores of the lake, augmented no doubt by a certain amount of very fine sediment drifted from the Bahr Yussuf, and by sand blown in by wind. The construction during recent years of extensive irrigation works in the Nile Valley has made it possible to largely augment the water-supply of the Bahr Yussuf to the Fayûm. High level canals are being cut in various parts of the district and abready large areas of desert covered by these lacustrine deposits have been brought under cultivation, notably to the north of Tamîa and in the neighbourhood of Qasr Qurûn.

The lowest part of the depression, lying immediately to the north-west of the cultivation, is occupied by a sheet of water of

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[1]) H. l. L. Beadnell: The Topography and Geology of the Fayûm Province of Egypt. — Cairo 1905.

[2]) Sir Hanbury Brown: The Fayûm and the Lake Moeris. — London 1892.

considerable size, known as Bîrket-el-Qurûm. The lake, which has a length of 40 kilometres, and a maximum breadth under ten, covers at the present time an area of about 225 square kilometres. It is entirely bordered by desert, along a large part of the southern side the cultivated land approaches its shore, although even here a large area actually bordering the lake is waste salty land as yet unfit for cultivation. Lake Moeris, being used as a regulator of excessively high and low Nile floods [1]), was of the greatest importance in connection with the irrigation of the Nile Valley.

The phenomenon of the extraordinary freshness of the water of the Bîrket-el-Qurûn has been commented on by Professor Schweinfurth, who shows that the degree of concentration of salt in a lake whose volume has been continually reduced, and to which salt has constantly been added, should be many times greater than the actual existing amount. An analysis [2]) of the water at the west end of the lake showed that the total salts amounted to only 1,34 %, of which 0,92 % was sodium chloride. Professor Schweinfurth concludes that the lake has a subterranean outlet, which alone would enable it to maintain its comparative freschness [3]).

With the exception of the lake and the cultivated area the depression is practically entire desert. The part of the Libyan Desert dealt with here has, excluding the cultivated land and the lake, an area of some ten thousand square kilometres. Some portions have been exactly examined and mapped, others are still very imperfectly known, especially on the south and south-west sides.

The rocks forming the area within the above limits are almost entirely of sedimentary origin, the exception being a band of hard basalt intercalated at the very top of the series and exposed only on the extreme northermost limit of the depression.

The unique character of the Fayûm is alone sufficient to show that special causes have acted in its production [4]). Two main causes stand out: 1. the presence of thick bands of comparatively soft arenaceous and argillaceous strata breaking up the usually continuous hard limestone of the Middle Eocene; 2. the effect of the Nile valley fault in lowering the whole of the western desert (north of

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[1]) Herodotus, Book II. — Strabo, Book XVII. — Diodorus Siculus, Book I, Chap. LI.

[2]) A preliminary Investigation of the soil and water of the Fayûm Province by Sucas. Cairo 1902. — Survey Departement.

[3]) Schweinfurth: On the salt in the Wady Rayan, in Willcocks: Egyptian Irrigation Appendix II, p. 460—465.

[4]) Blanckenhorn: Geologie Aegyptens, parts I—IV. Zischrft. Geol. Gesell. Berlin, 1901. — Flinders Petrie: Hawara. Biahmu and Arsinoe. — Egypt Explor. Fund Reports 1889. — Schweinfurth: Reise in das Depressionsgebiet im Umkreise des Fayûm. — Zeitschr. Ges. f. Erdkde, Berlin 1886.

Assiut) relatively to the eastern. The former took place as the result of changed geographical conditions on the continent to the south at the time in question, with which however we need not deal here. On a homogenous mass of rock weathering has little power to form depressions of any magnitude, and this is the cause of the continuous unbroken plateau which stretches southwards from the Fayûm, the under-lying rocks being one continuous thick mass of hard limestone. Wherever softer intercalations are present differential weathering takes place, and all the great depressions of the Libyan desert owe their origin to the presence oft soft easily denuded strata; if the great homogenous mass of the Nile Valley limestone had stretched unchanged westwards, the Little Oasis and Farâfra would never have existed.

Not one endemic species exists in this district and only a few species not found again in other districts of Egypt, these are the following:

Medicago granatensis.	Atriplex tataricum.
Astragalus brachyceras.	Najas pectinata.
Vicia gracilis.	Panicum eruciforme.
Myriophyllum spicatum.	Alopecurus agrestis.

c) The narrower Nile-Valley (N. v. N. v. mer.).

North of Aswân the Nile flows through a fertile and highly cultivated valley which opens out into the Delta 25 kilometres north of Cairo, and in this part of its basin the river occupies the western margin, all drainage lines of any importance coming in from the east on the right bank. This is due to the very unequal relief of the country lying on either side of the river. On the east the divide between the Nile and the Red Sea is formed by a range of ancient crystalline rocks running parallel to the coast at a short distance from it, and which rises to a considerable height since many of its peaks reach 1200 metres while some few attain or even exceed 2000 metres. On the west of the valley conditions are very different; the desert plateau rises rapidly from the valley, often as steep cliffs, and more gradually for some 10—20 kilometres beyond this. To this succeeds an almost horizontal plateau without any well defined drainage lines, rising here and there to low flat-topped ridges, but on the whole falling very gently to the westward. Only such rain storms as fall near the plateau edge are drained towards the river and but rarely does the water reach the margin of the cultivation. What falls on the plateau drains into shallow wind-worm depressions and there soaks into the rock or is soon evaporated. The area of the basin west of the Nile may in this part of its course be limited

to the 5—10 kilometres beyond the limits of the cultivation, and of this area none of it can be said to be effective seeing how small a quantity of rain falls. A few rain storms occur every winter but they are usually very local in their effect. On the eastern side the much larger area, and the steeper slopes, together with a greater frequency of rain near the Red Sea hills make the winter rainfall a more important factor.

In a trough from 2—10 kilometres wide and 100—300 metres deep lies the Nile, meandering through a flood plain formed by yearly deposits of silt brought down from the Abyssinian table land by the Blue Nile and the Atbara.

At Aswân two series of climatic observations exist which agree very fairly well. The first was taken at the Military Hospital at the north end of the town, while for the second series the thermometer screen is on the east bank of the river just below the reservoir dam about 200 metres from the river. Climatological stations were established at Assiut, Sheykh Fadl, Beni Suef, at Gîza, Cairo and other places.

Mean Monthly Temperature.

Locality	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Cairo	12.3	13.8	16.9	21.2	24.8	27.7	28.6	28.1	25.6	23.6	18.9	14.8	21.4
Gîza	10.9	13.0	15.2	19.3	22.7	24.8	25.7	26.1	24.0	22.0	17.1	12.9	19.4
Beni-Suef . . .	12.6	14.1	16.8	20.8	24.9	26.9	28.1	27.2	25.3	23.2	18.5	15.0	21.1
Sheykh-Fadl . .	11.0	14.0	17.0	21.3	25.2	27.4	28.6	28.5	25.5	22.8	16.7	12.7	20.9
Assiut	10.6	13.5	16.9	21.9	25.8	28.7	29.9	29.5	26.6	23.6	17.3	13.8	21.5
Nag Hamadi . .	12.4	15.7	19.4	24.7	27.3	29.9	30.1	30.1	27.6	25.0	23.5	14.8	23.3
Luksor	15.4	17.4	21.1	24.1	—	—	—	—	—	—	—	16.9	—
Kharga	15.8	15.3	18.7	23.9	29.4	31.6	31.3	32.3	27.1	24.0	18.1	—	[26.1]
Aswân Rest Camp. . . .	16.8	17.5	20.9	26.6	30.3	33.3	33.9	32.0	30.4	28.6	26.6	18.2	16 0
Aswân Reservoir	14.5	18.5	21.4	26.1	30.0	32.4	32.7	32.4	30.3	27.9	21.7	17.0	25.3

Mean Relative Humidity.

Locality	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Cairo . . .	69	65	59	57	47	47	50	56	62	66	66	70	57
Gîza . . .	82	77	70	63	57	57	63	67	73	75	75	81	70
Assiut . .	69	67	56	40	30	31	36	42	56	62	69	69	52
Aswân . .	57	37	32	30	25	24	22	23	30	39	34	57	33

Mean Vapour Tension.

Locality	Jan.	Febr.	Mar.	April	May	June	July	Aug.	Sept.	Octob.	Nov.	Dec.	Year.
Cairo . . .	7.2	7.3	7.8	8.7	9.9	11.9	13.6	14.6	14.2	13.2	10.6	8.1	10.6
Gîza . . .	7.2	7.4	8.4	10.2	11.6	13.4	15.1	15.8	15.6	14.3	10.8	8.3	11.6
Aswân . .	6.4	7.2	6.8	7.2	8.4	10.1	10.4	11.3	12.8	13.0	10.0	7.7	9.3
Assiut . .	5.9	5.3	5.6	7.4	7.7	8.4	7.8	7.4	9.1	9.5	7.3	6.7	7.3

On leaving Aswân the river flows due north in a narrow valley hardly more than a kilometre wide and bounded by sandstone cliffs about 20—30 metres high; behind this the desert rises slowly till on the west about 20—30 kilometres distant the steep face of the cretaceous limestone cliffs in seen bounding the higher desert plateau. At Gebel Silsile the Nile flows through a comperatively narrow channel 350 metres wide and many writers have maintained that there was formerly a rocky barrier at this point which the river has in time removed. There is but little change in the geographical character of the valley until near Beni Suef when the limestone plateau bends back so as to include the depression of the Fayûm afterwards passing under later deposits and not again appearing on this side.

The general dimensions of the valley are shown in the following table[1]).

Locality	Kilometres from Aswân	width		Between cliffs
		of River	of alluvial plain	
		metres	kilometres	kilometres
Aswân	0	800	—	2.8
Edfu	110	800	6.4	8
Luksor	219	1250	1.9	12.5
Quft	264	750	11.5	15
Farshut	355	1200	10.5	13
Sohag	448	450	15	18
Assiut	549	900	10	12
Mellawi	650	850	16	22
Minia	700	1000	11.5	17
Feshn	792	1000	13	17
Beni Suef . . .	826	1500	21	24
Al-Ayat	895	800	7.5	9.5
Cairo	945	600	15	17

The Nile between Aswân and Cairo follows a depression in which it has gradually deposited a considerable thickness of alluvial

[1]) Lyons: The Physiography of the River Nile and its basin. — Cairo 1906.

mud, and now it meanders on the flood-plain which it has formed. In earlier times side channels followed the lower margins of the valleys, and lagoons and swamps existed in the same part of the valley, but now owing to controlled irrigation such parts have been reclaimed and former water channels such as the Sohagia Canal, and the Bahr Yusuf are to-day supply-canals which irrigate the marginal portions of the valley. For the past fifty centuries at least the Nile has been depositing in this reach, and the average rise of the bed due to this is about 0,10 metre per century, so that some 5 metres of alluvial mud have been laid down in historical times. The needs of agriculture, and the requirements of a dense population have produced a strict control of the river so that the water of the low stage supply may be used as economically as possible, and the turbid water of the flood spread as widely as possible in order to deposit its sediment on the cultivated lands. The river therefore is more of the nature of a great supply canal than a stream free to meander through its flood-plain. Similar control of the water and consequent reclamation of the land have diminished the lake which once occupied the depression of the Fayûm, until now a small and rapidly shrinking lake alone remains.

Only a few species are characteristic to this subregion, some of them are from Tropical Africa and Asia (†).

†* Nasturtium niloticum.
Brassica bracteolata.
† Polygala erioptera.
Spergularia atheniensis.
† Bergia ammanioides.
† „ suffruticosa.
† Hibiscus verrucosus.
† Corchorus tridens.
† Cissus digitata.
Lupinus angustifolius.
Astragalus falcinellus.
† Acacia laeta.
† Ammania attenuata.
† Vahlia viscosa.
† Campanula dimorphantha.
† Leptadenia heterophylla.
Cuscuta monogyna.
† Heliotropium pallens.
†* Striga hermonthica.
Plantago exigua.
† Panicum Petiveri.
† Schoenefeldia gracilis.
† Eragrostis nutans.

III. Oases of the Libyan Desert.

The chief oases of the Libyan desert Siwa, Little Oasis, Dakhel, Farâfra, Great Oasis, occupy extensive depressions cut down through the horizontal Eocene strata (with the exception that Dakhel is almost entirely cut in Cretaceous strata) to the underlying saddle of Cretaceous rocks; some of the more porous beds of the latter are water-bearing and from them, either through natural passages or through artificial borings, the water rises to the surface, often under considerable pressure. The floor level varies considerably but the culti-

vated lands in general lie between 70 and 115 metres above sea level [1]).

I. Siwa. The Oasis of Ammon, or Siwa, at it is called in Arabic, doubtless from the ancient Egyptian name, is about 6 miles long by $4^1/_2$ to 5 miles wide. It is divided into two parts, of which the eastern is the more fertile. This part ends in a lake of brackish water on Nort-East, beyond which at a distance of about 10 miles is the small Oasis of Zêbûn. There is also a lake of brackish water on the West, on which side, from El-Gara to el-'Arashîya, there extends for 50 miles a series of small oases, all of which, together with that of Zêtûn, are included under the title of Siwa [2]).

The geological features resemble those of all the Oases. The soil is extremely fertile and covered with fruiting trees, principally the date-palm, of which there are five kinds, the "sultânî, frahî, saîdî, ghazâlî, all of excellent quality. These constitute the principal commerce and source of revenue.

II. Little Oasis [3]). The Little or Baharia Oases, lying 180 kilometres west of Minia, is a large natural excavation 150 metres deep and entirely surrounded by escarpments. The cultivated land bear a very small proportion to the total oasis-area; their general level is 110—115 metres above sea level, rising to 155 metres at Ain-el-Haiss in the southern part of the depression. The total area of cultivated land is about 2,500 acres, largely made up of palmgroves; rice, wheat and barley are grown, but the area sown with cereals has of late years being decreasing in extent owing to a diminshed output from the springs. Baharia is par excellence the date-producing oasis of Egypt and very large quantities are annually exported to the Nile valley; besides date-palms the gardens contain numbers of olive, apricot and other fruit trees. Taxation is on palm trees and land.

The water-supply is derived from Cretaceous sandstones forming the floor of the depression, the water rising naturally to the surface of the lowest areas. In numerous cases long adits have been driven into the rock to obtain an increased supply; these tunnels

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[1]) H. I. L. Beadnell: The Oases and the Geology of the Nile Valley in William Willcocks: The Nile in 1904. — London 1904.

[2]) G. Steindorff: Durch die libysche Wüste zur Ammonsoase. — Leipzig 1904. — W. Jennings-Bramley: A Journey to Siwa in September and October 1896 (Geogr. Journ. London, 1897 Vol. X p. 597—608). — Robecchi-Bricchetti. All'oasi di Giove Ammone. — Mailand 1900.

[3]) Ball and Beadnell: Baharia Oasis; its Topography and Geology. — Cairo 1903. — Ascherson: Bemerkungen zu meiner Karte meiner Reise nach der kleinen Oase in der Libyschen Wüste. (Ztschrft. Ges. Erdkde 1885 Vol. XX.) — H. W. Blundell: Notes sur une excursion à Khargueh, Dakhel, Farafrah et Behariyeh (Bull. Soc. Khédiviale de Géogr. 4 sér. p. 267—287).

communicate with the surface of the ground by a series of air shafts; they mostly date from early times. No deep wells appear to exist in the Oasis and certainly no borings have been made in modern times. The fall of the water-level is propably due to the gradual choking of the passages; an unsatisfactory and laborious method of clearing out wells is in vogue but little trouble is taken to prevent the deterioration of the water-supply generally. Practically all the available land in this oasis is under cultivation.

III. Farâfra [1]). This oasis occupies a large semicircular depression 300 kilometres west of Assiut. The floor is formed of the white chalk at the top of the Cretaceous, but at 'Ain-el-Wady, a spring in the north part of the depression at 26 metres above sea-level, the underlying beds are locally exposed. In the entire area there are 20 springs, mostly grouped round the village Qasr Farâfra; the total area of the latter, including the few palm-groves, probably does not amount to 500 acres. Wheat, barley, durra, rice, onions and some fruit are grown, and small quantities of dates and olives are exported; formerly the olives of Farâfra were celebrated for their quality, but of late years trees have deteriorated.

The water rises as springs from the white chalk and does not necessitate the use of lifting appliances, through the out put appears to be decreasing through natural causes.

Owing to the abscence of waste pools and marshy land the climate of Farâfra is more healthy than that of the other oases.

IV. Dakhel. This, by far the most important and prosperous of the Egyptian oases, lies three day's march west of Kharge, or about 300 kilometres west of Armant in the Nile Valley. The cultivable land within the oasis (400 square kilometres) amounts to nearly 50 000 acres of which one half is under cultivation; in addition several extensive areas of alluvium covered ground exist outside the oasis proper, not ably on the Gablari road between Dakhel and Great Oasis. Owing to the difficulty of drainage, salines, salty land, marshes and pools occupy 7000 acres.

There are nearly 130 000 adult palm trees in Dakhel, a large export trade in dates being carried on with the Nile Valley; the finest crops of wheat and barley are raised, while the fruits of the oasis, oranges, apricots, mulberries, etc. are abundant and of excellent quality.

The water-supply of the oasis is derived from an underground bed of sandstone, 55 metres thick, underlying a dense impervious red clay 45 metres in thickness. Below the water-bearing sandstone

[1]) H. I. L. Beadnell: The Oases and the Geology of the Nile Valley in William Willcocks: The Nile in 1904. — London 1904.

lies a black clay, never yet penetrated by the boring rods; it is probably that other water tables exist below and such would be in valuable for the irrigation of those parts of the oasis where the present supply is unsatisfactory. There seem to be no natural springs extant at the present day, the whole of the water-supply being through boreholes both ancient and modern.

It is probably that the water bearing table has its outcrop in the rainy regions of Darfur, although some of its water may be derived by direct infiltration from the Nile in its upper reaches.

V. Great Oasis[1]). The Great Oasis or Kharge, the eastern most of the two southern oases, is a north and south lying depression, mostly bounded by steep and lofty escarpments but open to the south and south west. A great part of its floor, which is composed of the Nubian sandstone is burried under sand accumulations. The adult palm trees in the oasis number about 60 000 and the cultivated lands have an area of some 4 500 acres. The crops raised do not appear to be sufficient to support the population, as a certain amount of grain is imported from Dakhel. Dates are exported to the Nile Valley, though in less quantities than from Dakhel and the Little Oasis.

The general level of the floor of the oasis lies between 50 and 130 metres above sea level, though near Qasr Zaiyan a limited area appears to lie below sea level. Water is met with in most localities on digging to a moderate depth, but the best supplies are from deep wells; as in Dakhel the majority of the wells are of considerable antiquity, though some have been recently made with modern boring plant. With an increased water-supply cultivation could be very much extended, as there are large areas of unoccupied alluvium covered land within the oasis.

The oases-region has only a few special-plants not more than some twenty and only 3 endemics. In the following list those species of tropical-african origin are marked by an †:

† Maerua crassifolia.
Silene gallica.
† Cardiospermum Halicaccabum.
Lotus lamprocarpus.
Pimpinella Schweinfurthii.
Ducrosia Ismaëlis.
* Sonchus maritimus.
† Utricularia exoleta.
Convolvulus pilosellifolius.
† Cordia Gharaf.
Veronica aquatica.
† Striga gesnerioides.
Rumex pulcher.
Populus Euphratica.
Potamogeton pusillus.
† Lemna paucicostata.
† Cyperus polystachyus.
† „ Mundtii.
Trisetum Rohlfsii.
† Antoschmidtia quinqueseta.
† Marsilia diffusa.

[1]) Beadnell: An Egyptian Oasis. — London 1909.

IV. The Desert region.

The relief of the deserts lying on either side of the Nile is very unequal[1]). On the east **(D. a.)** the divide between the Nile and the Red Sea is formed by a range of ancient crystalline rocks running parallel to the coast at a short distance from it, and which rises to a considerable height since many of its peaks reach 1200 metres while some few attain or even exceed 2000 metres. From the foot of this range the plateau, formed of cretaceous and tertiary sandstones and limestones, slopes gradually westwards towards the valley of the Nile but even here the edge of the plateau rises to 200 and 250 metres above the valley floor in many places. On the west of the valley conditions are very different **(D. l.)**; the desert plateau rises rapidly from the valley, often as steep cliffs, and more gradually for some 10—20 kilometres beyond this. To this succeeds an almost horizontal plateau without any well defined drainage lines, rising here and there to low flatt-topped ridges, but on the whole falling very gently to the westward. Thus there is no catchment basin of any extent on the west of the Nile, and the feebly marked drainage lines extend but a few kilometres back on to the plateau; only such rainstorms as fall near the plateau edge are drained towards the river and but rarely does the water reach the margin of the cultivation. What falls on the plateau drains into shallow wind-worn depressions and there soaks into the rock or is soon evaporated. The area of the basin west of the Nile may in this part of its course be limited to the 5 to kilometres beyond the limites of the cultivation and of this area none of it can be said to be effective seeing how small a quantity of rain falls. A few rainstorm occur every winter but they are usually very local in their effect. On the eastern side the much larger area, and the steeper slopes, together with a greater frequency of rain near the Red Sea Hills make the winter rainfall a more important factor; in about every second year one or other of the larger wadies comes down in flood, sometimes so suddenly as to carry away camels and sheep which may be grazing in the valleys and pours a large volume of water into the Nile. As a contribution to the river supply these "Seils" or rainfloods are unimportant but their effect in eroding the desert is immense. The rain falling heavily for a few hours on the bare rock surface of the desert where no vegetation exists to delay it, pours rapidly down the gentle slope of the plateau into the nearest valley carrying with it the material which the rapid variation of temperature in the summer months has loosened from the rock surface.

[1]) Lyons: The Physiography of the River Nile and its basin. — Cairo 1906.

The desert is characterized by a vegetation of fairly uniform character in its main features[1]). The means whereby the existence of these desert plants is preserved resides rather in the peculiarities of their organisation than in any specially favouring influences of the environment. The most prominent feature of this organisation is the capacity which the vegetative organs have acquired to resist factors so inimical to life as heat and drought, factors whose common tendency is to annihilate all living things. Though the minute details of these multifarious protective arrangements are not visible to the naked eye, they find obvious expression in the external conformation of the various organs of the plants. Thin-stemmed plants of delicate appearance have tubers or tuberous roots (*Erodium hirtum* and *Erodium arborescens*) snuk deep in the strong ground for the storing of reserves of nutriment adequate to maintain them alive through long months of absolute drought. The same end is gained in other delicate herbs by the possession of an enlarged woody basal portion. Then again, the tendency to general lignification through all the parts of the plants affords a capacity for resistance to many members of the families Cruciferae and Compositae, families known to us at home by their herbaceous, unprotected representatives. To restrict evaporation due to wind and solar radiation the desert flora exhibits a high degree of reduction in the surface area of its members. This principle is illustrated in numerous instances by poverty of foliage and considerable spininess, whilst in apparent contradiction of this tendency, one often finds the surface of the plant clad in a hairy covering or with glands and superficial excretions of wax or resin or strongly aromatic substances (*Erodium arborescens, Haplophyllum tuberculatum, Trigonella stellata, Odontospermum graveolens, Pulicaria undulata, Francoeria crispa, Iphiona mucronata, Achillea fragrantissima, Artemisia herba alba, Artemisia judaica, Lavandula pubescens and Lavendula coronopifolia*). Further we find plants with smooth or shiny, thick and flesly leaves. Nature does not work on one plane, but provides for every case special means of protection and fresh weapons to carry on the struggle. Side by side with the thorn-bristling *Zilla spinosa* we find the thickleaved, wax-coated *Capparis spinosa*, whilst near by are the hedgehog-like *Astragalus* and Fagonia, and the soft, fleshy, fibreless *Mesembrianthemum*. In marked contrast, too, are the *Chenopodiaceae*, a similar almost leafless everlasting-woody throughout, and one would think indestructible — and the delicate Parietaria with its thin and battist — like foliage. Among the life-destroying agencies of the desert, the omnipresent salt should be mentioned, and primarily — in the particular district

[1]) Schweinfurth in Page May: Helwân. — London 1904. — Second edition.

herein dealt with — common salt or sodium chloride, of which there are abundant quantities in allmost all strata of the tertiary (eocene) formation, constituting the eastern desert, where it occurs both in the solid limestone beds, and in the alternative beds of clayey and calcareous marl. The winter rains are insufficient to wash away the salt from all the outcropping strata: all it can do is to remove it from the valley bottoms and gullies by which it runs oft into the Nile. It is for this reason that vegetation occours in the district only in strips along the dry water-beds.

Perennial plants are just about half as numerous as the delicate annuals. Their existence is in dependent of the fluctuating and variable annual winter rains. They shoot anew and blossom even after a rainless or all but rainless winter. In marked contrast are the annual herbs which depend absolutely upon the rainfall; nor is all rain of equal value in promoting their development. For a rich spring vegetation of annuals, the rain should fall about the end of February and the early part of March, at which time the growing heat of the sun is capable of promoting germination. Trees are hardly met with in the district. · *Acacia torsilis*, *Retama Raetam* and some *Tamarniks* occur as trees, with well-formed trunks.

I. Libyan Desert. No more striking contrast can be imagined than that between the intensely cultivated Valley of the Nile and the barren deserts. There are arid wastes in many parts of the world — in Australia, in the western States of America, in Asia — but in point of desolateness, in the absence of animal and vegetable lif, there is probably nothing to rival the greater portion of the Libyan desert, on the west side of the Nile. Its barreness is aggressive: it is not necessary to travel far to make its acquaintance [1]). So sharp is the junction that, in a single step, one may pass from the richly cultivated alluvial soile of the Nile to the bare sandy plains which skirt the more rocky interior of the desert. Geographically the Libyan Desert is the eastern and most inhospitable portion of the Sahara, or Great Desert of Africa. On the north and east its boundaries are clearly defined by the Mediterranean Sea and the Nile Valley; on the south it is bounded by the Darfur and Kordofan regions of the Egyptian Sudan. With the exception of a narrow belt fringing the Mediterranean, the region is, to all intents and purposes, rainless, the occasional thunderstorms being extremely local. and seldom breaking over the same district in two consecutive years.

The Egyptian portion of the Libyan desert, is itself divisible into three areas having essentially different characters, the northern being an undulating nolling country of sandstones, grits, and gravels;

[1]) Beadnell: An Egyptian Oasis. — London 1909.

the central consisting of bare elevated limestone plateaux; the southern a lower-lying expanse of rugged sandstone, broken only occasionally by ridges and basses of granite and other crystalline rocks.

Only the following species are not known from other parts of Egypt:

Erucaria crassifolia.
Fagonia thebaica.
Ammodaucus leucotrichus.
Anvillea Garcini.
Centaurea furfuracea.
Salsola Pachoi.
Aristida Zittelii.

II. Arabic Desert. (D. a.)[1]. The neck of land which joins Asia to Africa, or the Ithmus of Suez **(D. i.),** is nearly one hundred miles wide; on the south side is the Gulf of Suez, on the north the Mediterranean. The Red-Sea and the Mediterranean appear to have been united in ancient days. The soil of El-Guirs is the highest point in this district. It is about 6 miles long, and from 20 to 23 m above the level of the sea. The soil is composed almost entirely of loose sand, interspersed with a few bed of hard sand and clay. North of El-Guirs the Lake Bala is situaded it is the principal among a series of shallow lakes, or rather swamps, through which the Suez-Canal passes before entering the low sandhills which extend frome this point to nearly Port Said. A chain of low sand-hills divide Lake Menzale from the smaller inland lakes. 1 $^1/_2$ miles from Qantara the Canal enters Lake Menzale, and continues in a straight line through it for 20 miles to Port Said. The banks here are but slightly above the level of the Canal and the lake, and from the deck of a big steamer there is an unbounded view over a wide expanse of lake and morass, studded here and there with islets, and at times rendered gay and brilliant with inumerable flocks of rosy pelicans, scarlet flamingoes and snow-white spoonbills; geese, ducks, herons, and other birds abundant. From the mouth of the Damietta branch of the Nile to the Gulf of Pelusium there stretches a low belt of sand, varying in width from 200 to 300 yds., and serving to separate the Mediterranean from the waters of the Lake Menzale; though often, when the lake is full and the waves of the Mediterranean are high, the two meet across this sligth boundary-line.

Only a few species limited only to this district: Delphinium deserti, Delphinium Bovei, Polycarpon arabicum, Verbascum sinaiticum, Otostegia microphylla and Leucas inflata[2]). The proper Arabic or Eastern Egyptian Desert **(D. a. sept. D. a. mer.)** from Wady Tumi-

[1]) Barron and Hume: Topography and Geology of the Eastern Desert of Egypt. — Cairo 1902.

[2]) Kotschy: Die Vegetation und der Canal auf dem Istmus von Suez. — Wien 1858.

lat to the Southern limits has been crossed at various points by many travellers during the present century [1]). The constitution of the surface of this desert-district naturally depends upon the geological formation. In the west, towards the Nile valley, we have tertiary nummulite limestone; here the desert has the character of a plateau-desert, like that of the Libyan desert, of which it forms merely a continuation, separated by the Nile valley. This formation is followed on the east by a sandstone, which appears to belong to the "Nubian sandstone", one of the latest members of the tertiary formation. The middle, the heart of the mountain system, is occupied mainly by dullooking primary rock, consisting of diorites (greenstones), diorite-breccias, and black or green-stone porphyries; with these are often intermingled very beautiful red-coloured granites and porphyries, and massive highly-coloured veins and lodes everywhere permeate the dark rock. The chief masses, those on which the others, so to speak, rest, are mainly composed of such granite, gneiss being less common. They rise to a height of 400 feet. These rocks are nowhere covered, as in other countries, with a layer of humus; but the geologist is not allowed to behold Earth in all her nakedness, since the superficial layer is generally traversed to such an extent with fissures, often of considerable depth, that it is not easy to break off a fragment the size of the fist showing a fresh fracture on all sides, while in ascending a mountain, from the crumbling of the surface, a firm footing cannot be obtained. In other districts, where much rain falls, this disintegrated rough-casting is washed away; here it remains, and the whole of the mountains look as if burned by the sun. The rocks in some ravines, where there are permanent waterfalls, do not show these fissures; they are firm, hard, and smooth as marble, since the water can take effect here.

About 80 species (given in the following list) belongs only to the northern part **(D. a. sept.)** of the Arabic desert and 10 of these are endemic. Those which are known from Sinai are marked by a †; an asterisk means the species is common in the district.

† Papaver Decaisnei.
Hypecoum pendulum.
Sisymbrium erysimoides.
Leptaleum filifolium.
† Isatis microcarpa.
† Schimpera arabica.
† Moricandia sinaica.
Reseda Boissieri.
† „ pruinosa.
Helianthemum niloticum.
Helianthemum Sancti Antonii.
Dianthus Guessfeldtianus.
* Gypsophila Rokejeka.
Silene Hussoni.
Alsine picta.
† Paronychia sinaica.
† Telephium sphaerospermum.
* Reaumuria hirtella.
Fagonia latifolia.
Rhus Oxyacantha.

[1]) Barron and Hume: Topography and Geology of the Eastern Desert of Egypt. — Cairo 1902.

Pistacia atlantica.
Rhamnus palaestina.
† Astragalus Schimperi.
* „ bombycinus.
† Onobrychis Ptolemaica.
Umbilicus intermedius.
† Gaillionia calycoptera.
Callipeltis aperta.
Valerianella Szovitziana.
Odontospermum pygmaeus.
* Odontospermum graveolens.
* Iphiona mucronata.
† Varthemia montana.
† Phagnalon nitidum.
„ Barbeyanum.
† Leyssera capillifolia.
* Achillea fragrantissima.
† Echinopus glaberrimus.
Atractylis Mernephthae.
† Centaurea eryngioides.
† Zoëgea purpurea.
Scorzonera mollis.
† Lactuca orientalis.
Launaea fallax.
* „ spinosa.
Wahlenbergia etbaica.
† Gomphocarpus sinaicus.
Podonosma galalensis.
† Lappula Sinaica.
† Paracaryum micranthum.
† Hyoscyamus Boveanus.
* Scrophularia deserti.
Salvia palaestina.
* Stachys aegyptiaca.
Ballota damascena.
† Teucrium leucocladum.
† „ pilosum.
Chenolea arabica.
Bassia latifolia.
Anabasis setifera.
† Atraphaxis spinosa.
Andrachne aspera.
Colchicum Guessfeldtianum.
Allium desertorum.
„ Crameri.
Bellevalia flexuosa.
Scirpus Holoschoenus.
* Pennisetum dichotomum.
„ orientale.
Andropogon laniger.
* Aristida obtusa.
„ caloptila.
Tetrapogon villosus.
† Boissiera pumilis.
† Poa sinaica.

The southern part **(D. a. mer.)** contains less own species than the other. The following list shows the most typical species.

Farsetia longisiliqua.
Cleome brachycarpa.
Dypterygium glaucum.
Polycarpia spicata.
Abutilon denticulatum.
* Corchorus Antichorus.
Indigofera argentea.
Tephrosia pogonostigma.
* Acacia spirocarpa.
Oldenlandia Schimperi.
Echinopus Hussoni.
Launaea massaviensis.
Nerium Oleander.
Glossonema Boveanum.
Trichodesma Ehrenbergii.
Anticharis glandulosa.
Clerodendron Acerbianum.
Lavandula atriplicifolia.
Giesekia pharnaceoides.
Boerhaavia verticillata.
Euphorbia dracunculoides.
Tragus Berteroanus.
Aristida funiculata.
„ Schweinfurthii.
„ hirtigluma.
Pappophorum brachystachyum.
Diplachne nana.
Eragrostis ciliaris.
„ coelachyrum.

V. Red-Sea-Region (R.)[1].

Nevertheless there are flat expanses in this region, but characterized by their great length and comparatively narrow width. Thus

[1]) Barron and Hume: Topography and Geology of the Eastern Desert of Egypt. — Cairo 1902.

the upper part of Wady Kene and the western plains have been proved to extend for over 200 kilometres from near the Galala hills in the north to the watershed near-Kene Qoseyr road on the south, though their breadth rarely exceeds 20 kilometres. Otherwise there are no important level areas in this region. The main Western Drainage of this area opens at one point only, viz. Kene itself. The highest ridges of the Red-Sea-Hills are near their eastern edge. The Red-Sea-Hills are not one continuous chain, but a series of ranges, advancing in echelon, each now longitudinal massif to the south being further east, though remaining parallel to its predecessor. The association of longitudinal and transverse rifts has given rise to mountain blocks. The Nubian sands and softer sandstones are the chief cause of many of the great plains and minor Valleys. Dykes have an important effect in the lower country bordering the Read-Sea-Hills, giving rise to a number of long parallel ridges with red crests or black outlines, while inversely, the softer diabases, by their rapid wearing away, are in many cases the cause of gullies. Red granite is one of the principal mountain-formers in the Red-Sea-Hills, rising in steep slopes from among the lower foot-hills, but in view of the complexity introduced by faulting, it is often difficult to say how far these masses are intrusions, which have withstood denudation better than the surrounding rocks. Its characteristics are either very sharp precipitious peaks, or when more denuded, rounded outlines.

In this district are only about 20 typical plants. The following list shows the principals of than:

Zygophyllum coccineum var. berenicense.
Avicennia officinalis.
Statice axillaris.
Atriplex farinosum.
Haplopeplis perfoliata.
Halophila ovalis.
„ stipulacea.
Thalassia Hemprichii.
Cymodocea rotundata.
„ serrulata.
„ isoetifolia.
„ ciliata.
Diplanthera univervis.
Aeluropus brevifolius.

Appendix III.

Tabular View of the distribution of the species within Egypt.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1. Polypodiaceae.																			
1. Adiantum capillus-Veneris	—	.	—	—	—	.	.	—	.	.	.	.	.	—	.	.	—	.	.
2. Marsiliaceae.																			
2. Marsilia diffusa	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
3. „ aegyptiaca	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	—
3. Gnetaceae.																			
4. Ephedra alte	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
5. „ alata	.	—	.	.	.	.	—	.	.	.	—	—	—	—	.	.	—	.	.
4. Typhaceae.																			
6. Typha angustata	.	—	—	—	.	.	.	—	—	.	—	—	—	.	.	.	—	.	.
7. „ latifolia	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
5. Potamogetonaceae.																			
8. Zostera nana	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
9. Posidonia oceanica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
10. Potamogeton natans	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ natans var. serotinus	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—
11. „ lucens	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
12. „ crispus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
13. „ pusillus	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
14. „ pectinatus	.	—	—	—	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
15. Ruppia maritima var. spiralis	.	—	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
15a. „ maritima var. rostrata	—	—	—	—	—	.	—	—	.	—	.	.	.	.	—	.	—	.	.
16. Cymodocea nodosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
17. „ rotundata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
18. „ serrulata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
19. „ isoëtifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
20. Cymodocea ciliata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
21. Diplanthera uninervis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
22. Zannichellia palustris	.	.	—	—	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
6. Naiadaceae.																			
23. Naias marina var. muricata	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
24. „ minor	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
25. „ horrida	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
26. „ graminea	.	.	—	.	—	.	.	.	.	—	—	.	.	.	.	.	—	.	.
7. Alismataceae.																			
27. Alisma plantago	.	.	—	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
27a. „ „ var. arcuatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
28. Damasonium alisma var. compactum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
8. Hydrocharitaceae.																			
29. Halophila ovalis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
30. „ stipulacea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
31. Thalassia Hemprichii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
32. Ottelia alismoides	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
9. Gramineae.																			
33. Imperata cylindrica	—	—	—	—	—	.	.	—	—	—	—	—	—	—	.	.	—	.	.
34. Saccharum biflorum	—	—	—	—	—	.	.	.	.	.	—	.	.	.	—	.	—	.	.
35. Rottboellia compressa var. fasciculata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
36. Elionurus hirsutus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
37. Andropogon halepensis	—	.	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
38. „ Sorghum	.	.	—	—	—	.	.	.	.	.	.	.	.	—	—	.	—	.	.
39. „ foveolatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
40. „ annulatus	.	.	—	—	—	.	—	—	—	—	—	.	.	—	—	.	—	.	.
41. „ hirtus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ hirtus pubescens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
42. „ laniger	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
43. Tragus racemosus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
44. Paspalum Digitaria	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
45. Panicum sanguinale	—	—	—	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
„ „ var. aegyptiacum	.	.	—	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—
„ „ var. ciliare	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
46. „ crus galli	—	.	—	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
„ „ „ var. echinatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
„ „ „ var. Sieberianum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
46. Panicum crus galli var. stoloniferum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
47. „ colonum	—	.	—	—	—	.	.	.	—	—	—	.	.	.	.	.	—	.	.
„ „ var. arabicum	—	.	—	.	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
„ „ var. glaucum	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. repens	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
48. „ prostratum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
48a. „ Oryzetorum (?)	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
49. „ Isachne	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
50. „ geminatum	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
51. „ obtusifolium	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
52. „ muticum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
53. „ miliaceum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
54. „ turgidum	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	.	—	.	.
55. „ repens	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
„ „ var. leiogonum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
56. „ coloratum	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
57. „ Petiverii	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
58. „ glaucum	—	.	—	.	—	.	.	.	—	—	—	.	.	.	.	.	—	.	.
59. „ viride	.	.	—	.	.	.	.	.	—	.	.	.	.	.	.	.	—	.	.
60. „ verticillatum	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. ambigua	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
61. Cenchrus montanus	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.	—	.	.
62. Pennisetum americanum	.	.	—	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
63. „ dichotomum	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
64. „ ciliare	.	.	—	—	—	.	.	.	.	.	—	.	—	—	—	.	—	.	.
65. „ orientale	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
66. Tricholaena Teneriffae	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
67. Oryza australis	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
68. Lygeum spartum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
69. Phalaris canariensis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
70. „ minor	—	.	—	—	—	.	.	—	.	.	—	.	.	.	.	.	—	.	.
71. „ paradoxa	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ var. praemorsa	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
72. Aristida adscensionis	.	.	.	.	.	.	.	—	—	—	—	.	.	.	—	.	—	.	.
„ „ var. pumila	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
73. „ Schweinfurthii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
74. „ funiculata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
75. „ obtusa	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
76. „ ciliata	.	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
77. „ plumosa	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
78. „ brachypoda	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
79. „ lanata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
80. „ caloptila	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
81. „ hirtigluma	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
82. „ acutiflora	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. I.	D. i.	D. a. sept.	D. a. mer.				
83. Aristida Zittelii	.	.	.	—	.	.	.	.	.	.	—	—	—	.	.	.	—	.	
84. „ pungens	.	.	.	.	.	.	.	—	.	.	—	—	—	.	.	.	—	.	.
85. „ scoparia	.	—	.	.	.	.	.	.	.	.	—	—	—	.	.	.	—	.	.
86. Stipa parviflora	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	—	.	.
87. „ tortilis	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	—	.	.
88. „ gigantea var. pellita	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	—	.	.
89. Oryzopsis miliacea	—	—	—	.	.	.	.	.	.	.	—	—	—	.	.	.	—	.	.
90. Heleochloa schoenoides	—	.	—	—	—	.	.	.	.	.	—	—	—	.	—	.	—	.	.
91. „ alopecuroides	—	—	—	.	—	.	.	.	.	.	—	—	—	.	—	.	—	.	.
92. Sporobolus spicatus	—	—	—	.	.	.	.	—	.	.	—	—	—	.	—	.	—	.	.
93. „ pungens	—	—	.	.	.	.	.	—	.	.	—	—	—	.	—	.	—	.	.
94. Polypogon monspeliensis	—	—	—	—	—	.	.	—	.	.	—	—	—	.	—	.	—	.	.
95. „ maritimus	.	—	.	.	.	.	.	.	.	.	—	—	—	.	—	.	—	.	.
96. Agrostis verticillata	—	.	—	.	—	.	.	.	.	.	.	—	—	.	—	.	—	.	.
97. Calamagrostis arenaria var. australis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
98. Triplachne nitens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
99. Lagurus ovatus	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
00. Crypsis aculeata	—	—	—	—	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
01. Alopecurus myosuroides	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02. Weingaertneria articulata	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.
03. Trisetum pumilum	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
04. „ macrochaetum	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
05. „ glumaceum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
06. „ lineare	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
07. Avena sterilis	—	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
08. „ fatua	—	.	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
09. „ barbata	—	.	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
10. „ Wiestii	—	—	—	.	—	.	.	—	.	.	.	—	—	—	.	.	—	.	.
11. Danthonia Forskâlei	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
12. Cynodon Dactylon	—	—	—	—	—	.	.	.	.	.	.	—	—	—	—	.	—	.	.
13. Schoenefeldia gracilis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
14. Chloris virgata	.	.	.	.	—	—	.	.	.	.	—	.	.	.	.	.	—	.	.
15. Tetrapogon villosus	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
16. Dinebra retroflexa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
17. Eleusine indica	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
18. „ Coracana	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
19. Dactyloctenium aegyptiacum	—	.	—	.	—	.	.	.	.	—	—	.	.	.	.	.	—	.	.
20. Pappophorum brachystachyum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
21. Boissiera pumilio	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
22. Schmidtia quinqueseta	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
23. Diplachne fusca	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
24. „ nana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
25. Arundo Donax	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
26. Phragmites communis	—	—	—	—	—	.	.	.	—	—	—	.	—	—	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.			
126. Phragmites communis	—	—	—	—	—	.	.	.	.	—	—	.	—	—	.	.	—	.
var. isiaca	—	—	—	—	—	.	.	.	.	—	—	.	.	—	.	.	—	.
„ „ var. stenophylla	.	.	.	.	.	.	—	.	.	.	—	—	.	—	.	.	—	.
127. Ammochloa palaestina	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.
128. Lamarckia aurea	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.
129. Cynosurus coloratus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.
130. Koeleria phleoides	—	—	.	.	.	.	.	.	.	.	.	—	—	.	.	.	—	.
131. „ Rohlfsii	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.
132. Sphenopus divaricatus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
133. „ Ehrenbergii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
134. Eragrostis minor	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
135. „ megastachya	—	.	.	.	—	.	.	.	.	.	—	.	.	.	.	.	—	.
136. „ tremula	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.
137. „ pilosa	.	.	—	.	—	.	.	.	.	—	.	.	.	.	.	.	—	.
138. „ aegyptiaca	.	.	—	.	—	.	.	.	.	.	.	—	—	.	.	.	—	.
139. „ ciliaris var. arabica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
140. „ bipinnata	.	.	—	—	—	.	—	—	—	—	—	.	—	—	.	.	—	.
141. „ nutans	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
142. „ coelachyrum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.
143. Aeluropus repens	—	—	.	—	—	.	.	—	—	—	—	.	—	—	.	.	—	.
144. „ arabicus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
145. Dactylis glomerata var. hispanica	—	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
146. Schismus calycinus	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
147. „ arabicus	—	—	.	.	.	.	.	—	.	.	.	—	—	—	—	.	—	.
148. Poa annua	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
149. „ sinaica var. aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.
150. Festuca uniglumis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
151. „ dertonensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
152. „ brevis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. subdisticha	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. spiralis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
153. „ pectinella	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.
154. Scleropoa philistaea	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
155. „ maritima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
156. „ rigida	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
157. „ memphitica	—	—	.	.	.	.	.	—	.	.	.	—	—	—	.	.	—	.
„ „ var. dichotoma	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
158. Bromus villosus	—	—	.	.	.	.	.	—	—	—	—	.	—	—	.	.	—	.
159. „ tectorum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
160. „ matritensis var. Delilei	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
161. „ rubens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
162. „ fasciculatus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
163. „ scoparius	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
164. „ alopecurus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
65. Bromus macrostachys var. lanuginosus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
66. „ hordaceus var. glomeratus	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
67. „ japonicus var. aegyptiacus	—	.	—	—	—	.	.	.	.	.	.	.	—	—	.	.	—	.	.
68. Brachypodium distachyum	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
69. Lolium temulentum	—	—	—	.	—	.	.	—	.	.	.	.	.	.	.	.	—	.	.
70. „ multiflorum	—	.	—	.	.	.	.	.	.	.	—	.	.	—	.	.	—	.	.
71. „ rigidum	—	—	.	.	—	.	—	—	.	.	.	.	—	.	.	.	—	.	.
„ „ var. compressum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
72. „ perenne	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
73. Agropyrum junceum var. Sartorii	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
74. Agropyrum elongatum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
75. Triticum vulgare	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
76. Aegilops ovata var. triaristata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
77. „ triuncialis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. brachyathera	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
78. „ bicornis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
79. „ longissima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
80. Lepturus incurvatus	—	—	—	—	—	—	.	—	.	.	.	—	.	—	.	.	—	.	.
81. Hordeum vulgare var. spontaneum	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
82. Hordeum maritimum	—	—	—	.	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
83. „ murinum	—	—	.	.	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
84. Elymus Delileanus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
10. Cyperaceae.																			
85. Cyperus polystachyus	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
86. „ Mundtii	.	.	.	.	.	.	.	—	—	.	.	.	.	.	.	.	—	.	.
87. „ laevigatus	—	—	—	—	.	.	.	—	—	—	—	—	—	—	—	.	—	.	.
„ „ var. pictus	—	—	.	.	.	.	.	.	.	—	—	.	.	—	—	—	—	.	.
88. „ alopecuroides	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
89. „ pygmaeus	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. Eu-Micheli-anus	—	.	—	.	.	.	.	—	.	.	—	.	.	.	.	—	—	.	.
90. „ capitatus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
91. „ conglomeratus	.	—	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
„ „ var. effusus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
92. „ fuscus	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. virescens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
93. „ difformis	.	.	—	—	—	.	.	.	.	—	—	.	.	.	.	.	—	.	.
94. „ compressus	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
95. „ auricomus	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. subalatus	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.			
196. Cyperus articulatus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
197. „ longus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.
198. „ badius	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.
199. „ rotundus	—	—	—	—	—	—	.	.	.	—	—	.	.	—	—	.	—	.
„ „ var. macrostachyus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
200. „ esculentus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.
201. „ bulbosus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
202. Heleocharis palustris	.	.	—	—	—	.	.	—	.	—	.	.	.	.	.	.	—	.
203. „ caduca	.	.	—	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.
204. Fimbristylis dichotoma	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. adventicia	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
205. „ ferruginea	.		.	—	.	.	.	—	.	—	—	.	.	.	.	.	—	.
206. Fuirena pubescens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
207. Scirpus parvulus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
208. „ Holoschoenus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. australis	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.
209. „ supinus var. uninodis	—	.	—	.	.	.	.	—	.	—	.	.	.	.	.	.	—	.
„ „ var. minimus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
210. „ articulatus	.	.	—	—	.	.	.	—	.	.	.	.	.	.	.	.	—	.
211. „ corymbosus	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
212. „ triqueter	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.
213. „ mucronatus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
214. „ litoralis	—	—	—	—	.	.	.	—	.	—	—	.	.	—	.	.	—	.
215. „ maritimus	—	.	—	—	—	.	.	—	—	—	—	.	.	.	—	.	—	.
216. Schoenus nigricans	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.
217. Carex stenophylla var. pachystyles	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
218. Carex divisa	—	—	—	—	—	—	.	—	.	—	—	.	.	.	.	.	—	.
219. „ extensa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
11. Palmae.																		
220. Phoenix dactilifera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.
221. Cocos nucifera	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
222. Hyphaene thebaica	.	.	.	.	—	.	.	.	.	—	—	.	.	.	—	.	—	.
12. Araceae.																		
223. Pistia stratiotes	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
224. Arisarum vulgare var. Veslingii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
225. Biarum Olivieri	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
226. Helicophyllum crassipes	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
13. Lemnaceae.																		
227. Lemna polyrrhiza	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
228. „ gibba	.	.	—	—	.	.	.	—	.	.	—	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a sept.	D. a. mer.				
29. Lemna minor	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
30. „ paucicostata	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
31. Wolffia hyalina	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
14. Commelinaceae.																			
32. Commelina Boissieri	—	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
15. Pontederiaceae.																			
33. Eichhornia crassipes	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
16. Juncaceae.																			
34. Juncus glaucus var. acutissimus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
35. „ maritimus var. arabicus	—	—	.	.	.	.	—	—	.	—	—	—	—	—	—	—	—	.	.
36. „ acutus	—	—	—	—	.	.	.	—	.	.	—	.	.	.	.	.	—	.	.
37. „ Fontanesii	.	.	.	—	.	.		—	.	.	.	.	.	.	.	.	—	.	.
38. „ bufonius	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.
„ „ var. fasciculatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
39. „ subulatus	—	—	—	.	—	—	.	—	.	—	—	.	—	.	.	.	—	.	.
17. Liliaceae.																			
40. Colchicum Ritchii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
41. „ Szovitsii	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
42. „ Guessfeldtianum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	—
43. Androcymbium punctatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
44. „ palaestinum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
45. Aloe vera	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
46. Tulipa montana	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
47. Gagea reticulata var. tenuifolia	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
„ „ var. fibrosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
48. Allium ampeloprasum	—	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
49. „ sphaerocephalum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. viridi-album	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
50. „ curtum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
51. „ Barthianum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
52. „ Cepa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.
53. „ paniculatum var. pallens	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
54. „ myrianthum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
55. „ desertorum	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
56. „ Erdelii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
57. „ roseum var. Tourneuxii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
58. „ Blomfieldianum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—

Names of species	M.		N.				O.					D.				P.		
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. i	D. i.	D. a. sept.	D. a. mer.		Total Native	Naturalized
259. Allium papillare	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—
260. „ neapolitanum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
261. „ Aschersonianum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
262. „ Crameri	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
263. Nothoscordon inodorum	—	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—
264. Dipcadi erythraeum	.	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	—
265. Urginea undulata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
266. „ maritima	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
267. Muscari comosum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
268. „ bicolor	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
269. „ racemosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
270. „ Letourneuxii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
271. „ parviflorum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
272. Hyacinthus sessiliflorus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
273. „ mauritanicus	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	—
274. „ flexuosus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—
275. „ macrobotrys	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
276. Scilla peruviana	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
277. Ornithogalum tenuifolium var. trichophyllum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
278. Asphodelus microcarpus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
279. „ tenuifolius var. micranthus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	—
280. „ viscidulus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
281. Asparagus officinalis	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—
282. „ stipularis	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—
„ „ var. brachyclados	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	—
283. Ruscus hypophyllum	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
18. Amaryllidaceae.																		
284. Narcissus Tazetta	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
285. Pancratium arabicum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
286. „ Sickenbergerii	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—
287. „ aegyptiacum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
288. „ maritimum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
19. Iridaceae.																		
289. Iris Helenae	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
290. „ Sisyrinchium	—	—	—	.	—	.	.	.	.	.	.	—	—	—	.	.	—	—
„ „ var. monophylla	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
291. Gladiolus segetum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
„ „ var. Guepini	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
20. Cannaceae.																		
292. Canna indica	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
21. Salicaceae.																			
293. Salix Safsaf	—	—	—	—	—	.	.	—	—	—	—	.	.	—	.	.	—	.	.
294. „ tetrasperma	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
295. „ babylonica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
296. Populus euphratica	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.
22. Moraceae.																			
297. Morus alba	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	.	.
298. Ficus carica	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	—	.
299. „ pseudosycomorus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
300. „ Sycomorus	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	.	.
„ „ var. citrina	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—
301. Cannabis sativa	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	.	.
23. Urticaceae.																			
302. Urtica urens	—	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
303. „ pilulifera	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
304. Parietaria alsinifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
305. „ judaica	—	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
306. Forskâlia tenacissima	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
24. Santalaceae.																			
307. Thesium humile	—	—	—	.	.	.	—	.	—	—	—	.	.	.	.	.	—	.	.
25. Polygonaceae.																			
308. Calligonum comosum	—	—	.	.	.	.	—	.	—	—	—	—	—	—	—	.	—	.	.
309. Emex spinosus	—	—	—	—	.	.	—	—	.	—	—	—	.	—	.	.	.	.	.
310. Rumex pulcher	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
311. „ bucephalophorus	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
312. „ dentatus	—	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	—	.	.
„ „ var. pleiodon	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.
313. „ aegyptiacus	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—
314. „ pictus	—	.	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
315. „ vesicarius	.	.	—	.	—	.	.	—	.	.	—	.	—	.	—	.	—	.	.
„ „ var. roseus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
316. Atraphaxis spinosa var. sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
317. Polygonum Bellardi	—	—	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
318. „ aviculare	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. litorale	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
319. „ plebejum	—	—	—	—	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
320. „ maritimum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
321. „ equisetiforme	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
322. „ serrulatum	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
323. „ persicaria	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
324. „ Convolvulus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.			
325. Polygonum limbatum	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
326. „ lanigerum	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.
327. „ senegalense	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
26. Chenopodiaceae.																		
327a. Chenopodium vulvaria	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
328. „ album	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
329. „ opulifolium	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
330. „ ficifolium	—	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	—	.
331. „ murale	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
332. „ ambrosioides	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.
333. „ Botrys	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
334. Beta vulgaris var. foliosa	—	.	—	—	.	.	—	—	—	—	—	.	.	—	.	.	—	.
„ „ var. maritima	—	.	.	—	.	.	.	.	.	.	.	.	—	—	.	.	—	.
335. Spinacia glabra	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
336. Atriplex hastatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. salinum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
337. „ dimorphostegium	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.
338. „ tataricum	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
339. „ portulaccoides	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.
340. „ parvifolium	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.
341. „ Ehrenbergii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
342. „ leucocladum	—	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.	—	.
343. „ Halimus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. Schweinfurthii	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	—	.
344. „ coriaceum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
345. „ farinosum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
346. Eurotia ceratoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
347. Chenoclea arabica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
348. Kochia scoparia	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
349. „ muricata	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.
„ „ var. tenuifolia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
350. „ latifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. inermis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
351. Halopeplis amplexicaulis	—	—	—	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.
352. „ perfoliata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
353. Halocnemon strobiliaceum	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
354. Arthrocnemon glaucum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
355. Salicornia fruticosa	—	—	—	.	.	.	.	—	.	.	.	.	—	.	.	.	—	.
356. „ herbacea	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
357. Suaeda monoica	.	.	.	.	.	.	.	—	.	.	—	.	.	.	.	.	—	.
358. „ vera	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. brevifolia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
359. „ fruticosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
360. „ pruinosa	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
361. Suaeda vermiculata	—	—	—	.	.	.	.	.	.	.	.	—	—	—	.	—	—	.	.
362. „ salsa	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
363. „ splendens	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
364. Schanginia baccata	—	—	—	—	—	—	.	.	.	—	—	—	—	—	.	.	—	.	.
365. „ hortensis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
366. Traganum nudatum	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
367. Seidlitzia Rosmarinus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
368. Haloxylon articulatum	—	—	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	.
369. „ Schweinfurthii	.	.	.	.	.	.	—	.	.	.	.	—	.	.	.	.	—	.	—
370. Salsola inermis	—	—	—	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
371. „ Kali	—	—	—	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
372. „ Volkensii	.	—	—	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	—
373. „ tetrandra	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
374. „ Pachoi	—	.	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
375. „ longifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
376. „ foetida	.	.	.	.	.	.	.	.	—	—	.	—	.	.	.	.	—	.	.
377. „ vermiculata var. villosa	—	—	.	.	.	.	.	.	—	—	—	—	.	.	.	.	—	.	.
378. Noaea mucronata	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
379. Anabasis articulata	—	—	.	.	.	.	—	—	—	—	.	—	—	—	.	.	—	.	.
380. „ setifera	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
381. Cornulaca monacantha	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.	.	—	.	.
382. Agathophora alopecuroides	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
383. Halogeton sativus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
27. Amarantaceae.																			
384. Amarantus hypochondriacus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
385. „ paniculatus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
386. „ caudatus	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
387. „ tricolor	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
388. „ patulus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
389. „ viridis	.	.	—	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
390. „ oleraceus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
391. „ hybridus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
392. „ chlorostachys	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
393. „ graecizans	—	.	—	—	—	.	—	—	—	—	—	.	.	.	—	.	—	.	.
„ „ var. angustifolius	.	.	—	.	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.
394. „ albus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
395. „ Blitum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
396. „ polygamus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
396a. „ Artineanus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
397. Aerva tomentosa	.	—	.	.	.	.	—	—	—	—	—	.	—	—	—	.	—	.	.
„ „ var. Bovei	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
398. Achyranthes aspera	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. sicula	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
399. Alternanthera nodiflora	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
400. Alternanthera achyranthoides	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
401. „ echinata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
28. Nyctaginaceae.																			
402. Mirabilis Jalapa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
403. Boerhaavia repens	.	.	.	.	—	.	.	.	.	—	—	.	.	.	.	.	—	.	.
„ „ var. diffusa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. undulata	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	—
404. „ verticillata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
29. Phytolaccaceae.																			
405. Phytolacca americana	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
406. Giesekia pharaceoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
30. Aizoaceae.																			
407. Mesembrianthemum crystallinum	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
408. „ nodiflorum	—	—	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
409. „ Forskâlii	.	.	—	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
410. Tetragonia expansa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
411. Trianthema pentandra	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
412. Aizoon hispanicum	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
413. „ canariense	—	—	.	.	.	.	.	.	.	.	—	—	—	—	—	.	—	.	.
414. Telephium sphaerospermum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
415. Mollugo Glinus	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
31. Portulaccaceae.																			
416. Portulacca oleracea	—	.	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
32. Caryophyllaceae.																			
417. Dianthus Cyri	.	.	—	.	.	.	.	—	.	—	—	.	.	.	.	.	—	.	.
418. „ Guessfeldtianus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—
419. Vaccaria segetalis	—	—	—	—	.	.	.	—	—	—	—	.	.	.	.	.	—	.	.
420. Gypsophila Rokejeka	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
421. Silene conoidea	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
422. „ Behen	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
423. „ gallica	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
424. „ cerastoides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
425. „ villosa	.	.	—	—	—	.	.	.	.	.	.	—	—	—	.	.	—	.	.
„ „ var. ismaelitica	.	—	.	.	.	.	—	.	.	.	.	.	—	—	.	.	—	.	.
426. „ obtusifolia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
427. „ setacea	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
428. „ nocturna	—	.	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
429. „ canopica	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
430. „ apetala	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. alexandrina	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
431. Silene colorata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. Oliveriana	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
432. „ rubella	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
433. „ aegyptiaca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
433a. „ linearis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
433a. „ Hussoni	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
434. „ succulenta	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
435. „ longipetala	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
436. Sagina apetala	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
437. Alsine procumbens	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. gracillima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
438. „ picta var. sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
439. Arenaria serpyllifolia var. glutinosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
440. Stellaria media	—	.	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.	.
441. Spergula flaccida	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
442. Spergularia salina	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
„ „ var. leiosperma	.	.	—	—	—	.	—	.	.	—	.	.	.	.	.	.	—	.	.
„ „ var. alexandrina	—	.	.	.	.	.	.	—	.	.	—	.	.	.	.	.	.	.	—
443. „ atheniensis	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
444. „ campestris	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
445. „ media	—	—	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.
446. „ diandra	—	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.
„ „ var. leiosperma	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
447. Robbeirea prostrata	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
„ „ var. maior	.	.	.	.	.	.	.	.	.	.	.	—	.	—	—	.	—	.	.
„ „ var. minor	—	.	.	.	.	.	.	.	.	.	.	—	.	—	—	.	—	.	.
448. Polycarpon tetraphyllum	—	—	—	—	—	.	.	—	—	—	.	.	.	.	.	.	—	.	.
449. „ alsinefolium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
450. „ arabicum	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
451. „ succulentum	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
452. Loeflingia hispanica	.	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
453. Policarpia repens	.	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
454. „ memphitica	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
455. „ spicata	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
456. Herniaria cinerea	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
457. „ hemistemon	—	—	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	.
458. Paronychia capitata	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
459. „ sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
460. „ argentea	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	—	.	.
461. „ arabica	—	—	.	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
462. „ lenticulata	.	—	—	.	.	.	—	—	.	.	.	—	—	—	.	.	—	.	.
463. Gymnocarpus decander	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
464. Sclerocephalus arabicus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
465. Pteranthus dichotomus	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	
466. Cometes abyssinica	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	
33. Nymphaeaceae.																			
467. Nymphaea Lotus	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
468. „ coerulea	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	
„ „ var. genunia	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
„ „ „ hypocyanea	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
„ „ „ Aschersoniana	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	
34. Ceratophyllaceae.																			
469. Ceratophyllum demersum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
35. Ranunculaceae.																			
470. Clematis flammula	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	
471. Anemone coronaria	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
472. Ranunculus trichophyllus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
„ „ var. Aschersonii	.	.	—	—	.	.	.	—	.	.	.	.	.	.	.	.	—	.	
473. „ asiaticus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
474. „ sceleratus	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
475. „ repens	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
476. „ arvensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
477. „ muricatus	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
478. „ trachycarpus	—	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
479. „ Guilelmi Jordani	.	.	—	—	.	.	—	—	—	—	—	.	.	.	.	.	—	.	
480. Adonis flammeus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
481. „ microcarpus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
482. Nigella arvensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
„ „ var. divaricata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
483. „ deserti	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	
484. „ Taubertii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
485. „ sativa	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	
486. Delphinium Ajacis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	
487. „ deserti	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	
488. „ nanum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
489. „ Bovei	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	
36. Berberidaceae.																			
490. Leontice leontopetalum	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
37. Menispermaceae.																			
491. Cocculus pendullus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
38. Papaveraceae.																			
492. Papaver rhoeas	—	—	—	.	.	.	.	.	.	.	.	•	.	.	.	.	—	.	.
493. „ dubium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
494. „ humile	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
495. „ Decaisnei	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
496. „ somniferum	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
497. „ hybridum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
498. „ Argemone	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
499. Roemeria hybrida	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
500. „ dodecandra	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
501. Glaucium corniculatum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
502. Hypecoum aegyptiacum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
503. „ deuteroparviflorum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
504. „ aequilobum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
505. „ pendulum	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
506. Fumaria densiflora	—	—	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
507. „ parviflora	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
508. „ officinalis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
509. „ judaica	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
39. Capparidaceae.																			
510. Cleome trinervia	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
511. „ droserifolia	.	.	.	.	.	.	—	.	.	.	.	—	—	.	.	.	—	.	.
512. „ chrysantha	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
513. „ arabica	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
514. „ brachycarpa	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
515. Gynandropsis pentaphylla	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
516. Dipterygium glaucum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
517. Maerua crassifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
518. Capparis decidua	.	.	.	.	.	.	.	.	.	—	—	—	—	—	—	.	—	.	.
519. „ spinosa	.	.	.	.	.	.	—	.	—	—	—	—	—	—	—	.	—	.	.
„ „ var. rupestris	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
520. „ galeata	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
40. Cruciferae.																			
521. Matthiola incana	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
522. „ humilis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. caulescens	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
„ „ var. hirta	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—
„ „ var. ecornuta	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
523. „ oxyceras	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
524. „ livida	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
525. Cheiranthus Cheirii	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
526. Nasturtium fontanum	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
527. „ niloticum	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
528. Nasturtium palustre	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
529. Arabis albida	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
530. Nasturtiopsis coronopifolia	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
531. Morettia philaeana	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
532. Notoceras bicorne	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
533. Anastatica hierochuntica	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
534. Malcolmia aegyptiaca	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. linearis	.	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
„ „ var. diffusa	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
535. „ pygmaea	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
536. „ torulosa var. contortuplicata	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
„ „ var. scorpiuroides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
537. Sisymbrium Sophia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
538. „ Irio	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
539. „ polyceratium	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
540. „ erysimoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
541. Couringia orientalis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
542. Erysimum repandum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
543. Brassica nigra	.	.	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.	.
544. „ bracteolata	.	.	—	.	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
545. „ rapa	.	.	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.	.
546. „ Tournefortii	—	—	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.	.
547. Sinapis juncea	.	.	—	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.
548. „ arvensis	—	—	—	.	—	.	.	—	—	—	—	.	.	.	.	.	.	.	.
„ „ var. turgida	—	.	—	.	—	.	.	—	—	—	—	.	.	.	.	.	.	.	.
„ „ var. Allionii	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
549. „ alba	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
550. Diplotaxis Harra	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
551. „ erucoides	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
552. „ acris	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
553. Moricandia sinaica	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
554. „ nitens	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
555. „ clavata	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
556. Eruca sativa	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	.	.
557. Savignya parviflora	.	.	.	.	.	.	.	.	.	—	.	—	—	—	.	.	—	.	.
558. Carrichtera annua	—	—	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
559. Schouwia purpurea var. Schimperi	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	—	.	.
560. Farsetia longisiliqua	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
561. „ ramosissima	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	—	.	.
562. „ aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	—	.	.
563. Fibigia clypeata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
„ „ var. rostrata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
564. Lobularia maritima	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
565. Lobularia libyca	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
566. „ arabica	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
567. Alyssum minimum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
568. „ homalocarpum	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
569. Leptaleum filifolium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
570. Camelina hispida	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
571. Capsella bursa-pastoris	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
572. „ procumbens	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
573. Lepidium sativum	.	.	.	—	—	—	—	.	.	.	—	.	.	.	.	.	—	—	.
574. „ Aucheri	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
575. „ Draba	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
576. „ latifolium	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
577. Biscutella didyma var. Apula	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
578. Coronopus sqamatus	—	.	—	—	—	—	—	.	.	—	—	.	.	.	.	.	—	.	.
579. „ niloticus	.	.	—	—	—	—	.	.	.	—	.	.	.	.	—	.	—	.	.
580. Isatis microcarpa	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
„ „ var. blepharocarpa	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
581. Neslea paniculata	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
582. Calepina Corvini	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
583. Schimpera arabica	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
„ „ var. lasiocarpa	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
584. Zila spinosa	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
585. Rapistrum rugosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. orientale	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
586. Didesmus aegyptius	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
587. Cakile maritima	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. aegyptiaca	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
588. Enarthrocarpus lyratus	.	—	—	—	—	.	—	—	—	—	—	.	.	—	—	.	—	.	.
589. „ pterocarpus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
590. „ strangulatus	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. amalecitanus	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
591. Reboudia microcarpa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
592. Erucaria aleppica var. latifolia	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
593. „ crassifolia	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	.
594. „ uncata	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
595. Raphanus sativus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
596. „ Raphanistrum	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
41. Resedaceae.																			
597. Caylusea canescens	—	—	.	—	.	.	.	.	.	—	.	—	—	—	—	.	—	.	.
598. Reseda alba	—	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
599. „ decursiva	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
600. „ arabica	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
601. „ odorata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
602. Reseda lutea	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
603. „ Boissierii	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
604. „ muricata	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
605. „ pruinosa	—	.	—	.	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
606. „ luteola	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
607. Oligomeris subulata	—	—	—	—	.	.	.	.	.	.	.	—	.	—	—	.	—	.	.
608. Ochradenus baccatus	.	.	.	.	.	.	.	.	.	.	.	—	.	—	—	.	—	.	.
42. Moringaceae.																			
609. Moringa pterygosperma	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.
610. „ aptera	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
43. Crassulaceae.																			
611. Tillaea trichopoda	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
612. Umbilicus intermedius	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
613. „ horizontalis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
614. Bryophyllum pinnatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
615. Calenchoë deficiens	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
44. Saxifragaceae.																			
616. Vahlia viscosa	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
45. Rosaceae.																			
617. Rubus sanctus	—	—	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
618. Potentilla supina	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
619. Poterium verrucosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
620. Rosa bracteata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
621. Neurada procumbens	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
46. Leguminosae.																			
622. Prosopis Stephaniana	.	.	—	.	.	.	—	—	—	—	—	—	.	—	—	.	—	.	.
623. Mimosa asperata	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
624. Acacia albida	.	.	.	.	—	.	—	—	—	—	—	—	.	—	—	.	—	.	.
625. „ laeta	.	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
626. „ arabica	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. nilotica	.	.	—	—	—	.	—	—	—	—	—	—	.	—	—	.	—	.	.
627. „ Seyal	.	.	—	.	—	.	.	.	.	.	.	—	.	—	—	.	—	.	.
628. „ Ehrenbergiana	.	.	.	.	—	.	.	.	.	.	.	—	.	—	—	.	—	.	.
629. „ spirocarpa	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.
630. „ tortilis	.	.	.	.	—	.	.	.	.	.	.	—	—	—	—	.	—	.	.
631. Caesalpinia sepiaria	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
632. Cassia occidentalis	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
633. „ Sophera	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
634. „ bicapsularis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
635. „ obovata	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
636. „ acutifolia	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
637. Lotononis dichotoma	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
638. Argyrolobium uniflorum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
639. Crotalaria thebaica	.	.	.	.	—	.	.	.	.	.	.	—	—	—	—	.	—	—	.
640. „ aegyptiaca	.	.	.	.	—	.	.	.	.	.	.	—	.	—	—	.	—	—	.
641. Retama Raetam	—	.	.	.	.	.	.	.	.	.	.	—	.	—	—	.	—	—	.
„ „ var. Duriaei	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
642. Lupinus digitatus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	—
643. „ angustifolius	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
644. „ Termis	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
645. Ononis Natrix var. stenophylla	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
645a. „ vaginalis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
646. „ reclinata var. minor	—	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	—	—	.
647. „ pubescens	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
648. „ sicula	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	—	.
649. „ serrata	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	—	.
650. „ mitissima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
651. Trigonella Aschersoniana	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
652. „ Foenum graecum	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
653. „ occulta	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
654. „ monspeliaca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
655. „ cylindracea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
656. „ media	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
„ „ var. amblyodon	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
„ „ var. Delilei	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
657. „ hamosa	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
„ „ var. indurata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
658. „ laciniata	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
„ „ var. bicolor	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
659. „ maritima	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
660. „ stellata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
661. „ anguina	.	.	—	—	—	.	.	.	.	.	.	—	.	—	—	.	—	—	.
662. „ arabica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
662a. „ Sickenbergiana	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
662b. „ Schweinfurthiana	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
663. Medicago sativa	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	—	.
664. „ marina	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
665. „ arborea	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
666. „ orbicularis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
667. „ litoralis	—	—	—	—	.	.	.	—	—	—	—	.	.	.	.	.	—	—	.
668. „ truncatula	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
669. „ tuberculata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
670. „ rigidula	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
671. „ coronata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
672. „ granatensis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
673. „ hispida	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
674. „ minima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.			
675. Medicago arabica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
676. „ ciliaris	—	.	—	—	.	.	—	—	—	—	—	.	.	.	.	.	—	.
677. „ Aschersoniana	.	—	—	—	.	.	.	.	.	.	.	—	—	—	—	.	—	.
678. „ lupulina	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
679. Melilotus sulcatus	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. maior	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
680. „ messanensis	—	—	—	—	.	.	—	—	—	—	—	.	—	—	—	.	—	.
681. „ elegans	.	.	—	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.
682. „ indicus	—	—	—	—	.	.	—	—	—	—	—	.	—	—	—	.	—	.
683. Trifolium lappaceum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
684. „ stellatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
685. „ angustifolium	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
686. „ purpureum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
687. „ alexandrinum	—	—	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.
688. „ formosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
689. „ dichroanthum	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
690. „ fragiferum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
691. „ resupinatum	—	—	—	—	—	.	.	—	—	—	—	.	—	—	—	.	—	.
692. „ tomentosum	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.
693. „ xerocephalum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
694. „ nigrescens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
695. „ patens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
696. „ stenophyllum	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
697. „ procumbens	—	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.
698. Hymenocarpus nummularis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
699. Bonaveria Securidaca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
700. Lotus argenteus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
701. „ creticus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
702. „ cytisoides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
703. „ corniculatus	—	—	—	—	.	.	—	—	—	—	—	.	—	—	—	.	—	.
„ „ var. tenuifolius	—	—	—	—	.	.	—	—	—	—	—	.	—	—	—	.	—	.
704. „ lamprocarpus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ lamprocarpus var. glaberrimus	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.	—	.
705. „ lanuginosus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
706. „ arabicus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
707. „ glinoides	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
708. „ Schimperi	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
709. „ angustissimus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. diffusus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
710. „ peregrinus	—	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.
711. „ villosus	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.
„ „ var. Aschersonii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
712. „ ornithopodioides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
713. „ edulis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
714. Tetragonolobus palaestinus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
115. Psoralea plicata	.	.	.	—	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
116. Indigofera paucifolia	.	.	.	.	—	.	.	.	.	—	.	.	.	.	.	.	—	.	.
117. „ argentea	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
118. „ anabaptista	.	.	.	—	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
119. „ arabica	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
120. Tephrosia apollinea	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
121. „ pogonostigma	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
122. Astragalus prolixus	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
123. „ tribuloides	—	—	.	.	.	.	—	.	.	.	.	—	—	—	—	.	—	.	.
124. „ sinaicus	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
125. „ cruciatus	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
126. „ radiatus	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
127. „ Schimperi	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
128. „ contortuplicatus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
129. „ falcinellus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
130. „ eremophilus	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
131. „ corrugatus	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
132. „ gyzensis	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
133. „ annularis	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
134. „ trimestris	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
135. „ hispidulus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
136. „ mareoticus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
137. „ balticus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
138. „ hamosus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
139. „ brachyceras	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
140. „ bombycinus	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
141. „ peregrinus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
142. „ alexandrinus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
„ „ var. elongata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
143. „ tomentosus	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
144. „ Sieberi	.	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
145. „ trigonus	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
146. „ leucacanthus	—	.	.	.	.	.	.	.	.	—	.	.	—	—	—	.	—	.	.
147. „ Forskâlii	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
148. „ cahiricus	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
149. „ camelorum	.	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
150. Sesbania cinerascens	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
151. „ aegyptiaca	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
152. „ pubescens	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
153. Glycirrhiza glabra	.	.	—	.	.	.	—	—	—	—	—	.	.	.	.	.	—	.	.
154. Scorpiurus sulcata	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
155. „ muricata	—	—	—	—	.	.	.	—	.	—	—	.	.	.	.	.	—	.	.
„ „ var. laevigata	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
156. Hippocrepis unisiliquosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
157. „ bisiliqua	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
158. „ multisiliquosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
759. Hippocrepis cyclocarpa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
760. „ constricta	.	.	.	.	—	.	.	.	.	.	.	—	.	.	—	.	—	.	.
761. „ bicontorta	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
762. Coronilla scorpioides	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
763. Hedysarum spinosissimum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
764. „ coronarium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
765. Onobrychis Crista galli	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
766. „ Gaertneriana	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
767. „ ptolemaica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
768. Taverniera aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
769. Ebenus Armitagei	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
770. Alhagi maurorum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.
771. Arachis hypogaea	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
772. Cicer arietinum	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
773. Vicia lutea var. hirta	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. purpurascens	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
774. „ sativa	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. angustifolia	—	—	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	—	.
„ „ var. cordata	—	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
„ „ var. amphicarpsa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
775. „ peregrina	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
776. „ narbonensis	—	—	—	—	.	.	.	—	—	.	.	.	.	.	.	.	—	.	.
„ „ var. aegyptiaca	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. affinis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
777. „ calcarata	—	—	—	—	—	.	.	—	—	—	—	.	—	.	.	.	—	.	—
778. „ varia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
779. „ salaminia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
780. „ Ervilia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
781. „ gracilis	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
782. Lens esculenta	—	—	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.
783. Lathyrus Aphaca	—	—	—	—	—	.	.	—	—	—	—	.	—	.	.	.	—	.	.
784. „ Gorgonii	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
785. „ annuus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
786. „ hierosolymitanus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
787. „ sphaericus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
788. „ Cicer	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
789. „ marmoratus	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
790. „ sativus	—	.	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.
791. „ hirsutus	—	.	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.
792. Pisum sativum	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. elatius	.	.	—	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
793. Vigna nilotica	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
794. „ sinensis var. sesquipedalis	—	—	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.
795. Dolichos Lablab	—	—	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
795. Dolichos Lablab var. hortensis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.
796. Rhynchosia Memnonia	.	.	.	—	—	.	.	—	.	—	—	—	.	.	—	.	.	.	.
47. Geraniaceae.																			
797. Monsonia nivea	.	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
798. „ heliotropoides	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
799. Geranium molle	—	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
800. „ dissectum	—	.	—	.	.	.	—	—	.	—	.	.	.	.	.	.	—	.	.
801. Erodium cicutarium	—	.	.	.	.	.	.	—	.	—	—	.	.	—	.	.	—	.	.
802. „ moschatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
803. „ ciconium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
804. „ chium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
805. „ aegyptiacum	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
806. „ triangulare	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
807. „ gruinum	—	.	—	—	—	.	.	.	.	.	—	.	.	.	.	.	—	.	.
808. „ malacoides	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
809. „ hirtum	—	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	.
810. „ glaucophyllum	—	.	.	.	—	.	.	.	.	.	.	—	.	—	.	.	—	.	.
811. „ arborescens	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	.
812. „ bryoniaefolium	—	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	.
813. Pelargonium zonale		.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
48. Oxalidaceae.																			
814. Oxalis cornua	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
815. „ corniculata	—	.	—	—	.	.	—	—	—	—	—	.	.	.	.	.	—	.	.
816. Biophytum sensitivum	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
49. Tropaeolaceae.																			
817. Tropaeolum maius	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
50. Linaceae.																			
818. Linum maritimum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
819. „ strictum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
820. „ pubescens	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
821. „ grandiflorum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
822. „ decumbens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
823. „ usitatissimum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
824. „ humile	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
51. Zygophyllaceae.																			
825. Tedradiclis salsa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
826. Peganum Harmala	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
827. Tribulus bimucronatus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
828. „ terrestris	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
829. „ alatus	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	•	—	.	.
830. „ macropterus	.	.	.	.	.	.	.	—	—	—	—	—	.	—	—	•	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
831. Nitraria retusa	—	—	—	.	.	.	—	—	—	—	—	—	.	—	—	—	—	.	.
832. Seetzeenia orientalis	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
833. Zygophyllum dumosum	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	—	.	.
834. „ simplex	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
835. „ Fabago	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
836. „ decumbens	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
837. „ album	—	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
838. „ coccineum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
„ „ var. berenicense	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
838a. „ Guyotii	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
839. Fagonia latifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
840. „ glutinosa	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
841. „ cahirina	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
842. „ cretica	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
843. „ Bruguierii	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
844. „ myriacantha	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
845. „ mollis	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
846. „ arabica	.	—	.	.	.	.	.	—	—	—	—	—	—	—	—	.	—	.	.
847. „ thebaica	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
848. „ parviflora	.	.	.	.	—	.	.	.	.	.	.	—	.	.	—	.	—	.	.
52. Rutaceae.																			
849. Ruta chalepensis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.
850. Haplophyllum tuberculatum	—	—	—	—	—	.	.	.	.	.	.	—	—	—	—	.	.	—	.
53. Simarubaceae.																			
851. Balanites aegyptiaca	.	.	.	.	.	.	.	—	.	.	—	.	.	.	.	.	—	.	.
54. Meliaceae.																			
852. Melia Azedarach	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
55. Polygalaceae.																			
853. Polygala erioptera	.	.	.	.	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
56. Euphorbiaceae.																			
854. Croton glandulosus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
855. Crozophora plicata	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. prostrata	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
856 „ tinctoria	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. subplicata	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. hierosolymitana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
857. „ obliqua	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
858. Mercurialis annua	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
859. Ricinus communis	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
860. Phyllanthus rotundifolius	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
861. Andrachne telephioides	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dahel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
862. Andrachne aspera	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
863. Euphorbia Peplis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
864. „ granulata	.	—	.	.	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
865. „ indica	.	.	.	.	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
866. „ chamaesyce	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
867. „ aegyptiaca	—	.	—	.	—	.	.	—	.	—	.	.	.	—	.	.	—	.	.
868. „ mauritanica	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
869. „ cornuta	.	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
870. „ arguta	.	.	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
871. „ heliosccopia	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
872. „ parvula	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
873. „ dracunculoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
874. „ Peplus	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
„ „ var. maritima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
875. „ peploides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
876. „ chamaepeplus var. sinaica	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
877. „ punctata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
878. „ Terracina var. prostrata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
879. „ Paralias	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
880. „ prunifolia	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
881. Jatropha multifida	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
882. „ Curcas	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
57. Anacardiaceae.																			
883. Rhus Oxyacantha	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
884. Pistacia Khinjuk var. glaberrima	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
885. Mangifera indica	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
58. Sapindaceae.																			
886. Cardiospermum Halicacabum	.	.	—	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
887. Dodonaea viscosa.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
59. Rhamnaceae.																			
888. Zizyphus jujuba	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
889. „ Spina-Christi	—	.	—	.	—	.	.	—	—	—	—	—	.	—	—	.	—	.	.
890. Rhamnus disperma	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
60. Vitaceae.																			
891. Cissus ibuensis	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
892. Vitis vinifera	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
61. Tiliaceae.																			
893. Corchorus trilocularis	.	.	.	.	.	—	—	.	—	—	—	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
894. Corchorus olitarius	—	—	—	—	—	.	—	—	—	—	—	.	.	—	—	.	—	.	.
„ „ var. incisifolius	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
895. „ tridens	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
896. „ antichorus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
62. Malvaceae.																			
897. Malva aegyptiaca	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
898. „ silvestris	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. ambigua	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
899. „ nicaeensis	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
900. „ parviflora	—	—	—	—	—	.	—	—	—	—	—	—	.	—	—	.	—	.	.
901. Althaea Ludwigii	—	.	—	—	—	.	—	—	—	—	—	.	—	?	.	.	—	.	.
902. „ acaulis	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
903. „ striata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
904. „ ficifolia	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
905. Lavatera cretica	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
906. Sida spinosa	.	.	—	.	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
907. Abutilon angulatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
908. „ graveolens	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
909. „ bidentatum	.	.	.	.	.	.	.	—	.	.	—	.	.	—	.	.	—	.	.
910. „ denticulatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
911. „ Avicennae	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
912. „ muticum	.	.	.	—	—	.	.	.	.	—	—	.	.	.	—	.	—	.	.
913. Hibiscus Trionum	—	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
914. „ Sabdariffa	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
915. „ cannabinus	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
916. Gossypium barbadense	—	—	—	—	—	.	—	—	—	—	—	.	—	.	.	.	—	.	.
917. „ anomalum	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
918. „ arboreum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
919. „ herbaceum	—	—	—	—	—	.	—	—	—	—	—	.	—	—	.	.	—	.	.
63. Sterculiaceae.																			
920. Sterculia tomentosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
64. Elatinaceae.																			
921. Elatine campylosperma	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
922. Bergia aquatica	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
923. „ ammanioides	.	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
924. „ suffruticosa	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
65. Frankeniaceae.																			
925. Frankenia pulverulenta	—	—	—	—	—	.	—	—	—	—	—	.	—	—	—	.	—	.	.
926. „ laevis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. revoluta	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
66. Tamaricaceae.																			
927. Tamarix tetragyna	—	.	—	—	.	.	—	—	—	—	—	—	—	—	—	.	—	.	.
„ „ var. Meyeri	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	—	.	.
928. „ nilotica	—	.	—	—	—	—	.	—	—	—	—	—	.	.	.	.	—	.	.
929. „ mannifera	.	—	—	—	—	.	—	.	.	.	—	.	.	.	.	.	—	.	.
930. „ arborea	—	.	—	—	—	.	—	—	—	—	—	—	.	.	.	.	—	.	.
931. „ articulata	—	.	—	—	—	.	—	—	—	—	—	—	—	—	.	.	—	.	.
932. „ amplexicaulis	.	.	.	.	.	.	—	.	.	.	—	.	.	.	.	.	—	.	.
933. „ macrocarpa	.	.	.	—	.	.	.	.	.	.	—	.	—	—	.	.	—	.	.
934. „ passerinoides	.	.	.	—	.	.	—	.	.	.	—	.	—	—	.	.	—	.	.
935. Reaumuria hirtella	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
936. „ mucronata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
67. Cistaceae.																			
937. Helianthemum virgatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
938. „ vesicarium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
939. „ ciliatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. pseudo-vesicarium	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
940. „ Schweinfurthii	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
941. „ cahiricum	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
942. „ Sancti Antonii	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
943. „ ellipticum	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
944. „ Lipii	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
945. „ ledifolium	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
946. „ salicifolium	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
947. Fumana thymifolia	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
68. Violaceae.																			
948. Viola odorata	—	—	—	—	—	.	.	.	.	.	.	.	—	—	.	.	.	—	.
69. Passifloraceae.																			
949. Passiflora coerulea	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
70. Caricaceae.																			
950. Carica Papaya	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
71. Cactaceae.																			
951. Opuntia Ficus indica	.	.	—	—	—	.	.	.	.	—	—	.	.	.	.	.	.	—	.
952. „ inermis	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
72. Thymelaeaceae.																			
953. Thymelaea hirsuta	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
73. Elaeagnaceae.																			
954. Elaeagnus hortensis var. orientalis	—	.	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
74. Lythraceae.																			
955. Lythrum tribracteatum	.	.	—	—	—	.	.	.	.	—	—	—	.	.	.	.	—	.	.
956. „ hyssopifolium	.	.	—	—	—	.	.	—	.	.	.	.	.	.	.	.	—	.	.
957. „ thymifolium	.	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
958. „ flexuosum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
959. Ammannia auriculata	.	.	—	.	.	.	.	—	.	—	—	.	.	.	.	.	—	.	.
960. „ senegalensis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
961. „ baccifera	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. aegyptiaca	.	.	—	—	—	.	.	.	—	.	—	.	.	.	.	.	—	.	.
962. „ attenuata	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
963. Lawsonia inermis	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
75. Punicaceae.																			
964. Punica Granatum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.
76. Combretaceae.																			
965. Terminalia glabra	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
77. Myrtaceae.																			
966. Eucalyptus robustus	—	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
78. Oenotheraceae.																			
967. Epilobium hirsutum	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
968. Jussiaea repens	.	.	—	—	.	.	.	.	.	—	.	.	.	.	.	.	—	.	.
969. „ linifolia	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
79. Halorrhagidaceae.																			
970. Myriophyllum spicatum	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
80. Cynomoriaceae.																			
971. Cynomorium coccineum	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
81. Aralaceae.																			
972. Hedera Helix	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
82. Umbelliferae.																			
973. Eryngium campestre	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
974. „ creticum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
975. Sanicula europaea	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
976. Coriandrum sativum	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
977. Bupleurum subovatum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
977. Bupleurum subovatum var. heterophyllum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
978. „ nodiflorum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
979. „ Muschleri	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
980. „ semicompositum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
981. Apium graveolens	—	—	—	.	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
982. Heliosciadium nodiflorum	—	.	—	.	.	.	.	.	.	.	.	—	.	.	.	.	—	—	.
983. „ crassipes	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
984. Petroselinum sativum	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
985. Pithyranthus tortuosus	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
986. „ triradiatus	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
987. Carum Carvi	—	—	—	—	—	.	.	.	.	.	.	.	—	—	.	.	.	—	.
988. Ammi majus	—	—	—	—	—	.	.	.	.	.	.	.	—	—	.	.	—	—	.
989. „ Visnaga	—	.	—	—	—	.	.	.	.	.	.	.	—	—	.	.	—	—	.
990. „ copticum	.	.	—	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
991. Berula angustifolia	.	.	—	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
992. Pimpinella Schweinfurthii	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	—	—	.
993. „ Anisum	—	—	.	.	.	.	—	—	—	—	—	.	.	.	.	.	—	—	.
994. Scandix Pecten Veneris	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
995. Chaerophyllum cerefolium	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
996. Anthriscus lamprocarpa	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
997. Foeniculum capillaceum	—	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	—	.
998. „ piperitum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
999. Crithmum maritimum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1000. Ducrosia Ismaelis	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	—	.
1001. Ferula sinaica	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1002. Anethum graveolens	.	.	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1003. Tordylium aegyptiacum	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1004. Zozimia absinthiifolia	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1005. Malabaila pumila	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1006. Orlaya maritima	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1007. Ammodaucus leucotrichus	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	—	.
1007a. Daucus Broteri	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1008. „ litoralis var. Forskâlei	—	—	—	—	—	.	.	.	.	.	.	—	—	.	.	.	—	—	.
1009. „ guttatus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1010. „ aureus	.	—	—	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1011. „ Carota	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
„ „ var. Boissieri	—	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
1012. Torilis infesta	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1013. „ neglecta	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1014. „ nodosa	—	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	.
1015. Caucalis tenella	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1016. „ leptophylla	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1017. Cuminum Cyminum var. hirtum	.	—	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. f.	D. i.	D. a. sept.	D. a. mer.				
83. Ericaceae.																			
1018. Arbutus Unedo	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
84. Primulaceae.																			
1019. Asterolinum stellatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1020. Anagallis arvensis	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1021. „ latifolia	—	.	—	.	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1022. Samolus Valerandi	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1023. Coris monspeliensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
85. Plumbaginaceae.																			
1024. Statice Thouini	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1025. „ Limonium	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1026. „ delicatula	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1027. „ pruinosa	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1028. „ axillaris	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.
1029. „ echioides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1030. „ tubiflora	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1031. Limoniastrum monopetalum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1032. Plumbago zeylanica	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
86. Salvadoraceae.																			
1033. Salvadora persica	.	.	.	.	—	.	.	.	.	.	.	.	.	—	—	.	—	.	.
87. Oleaceae.																			
1034. Jasminum officinale	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1035. Olea europaea	.	.	—	—	.	.	—	—	—	—	—	.	.	.	.	.	—	—	.
88. Gentianaceae.																			
1036. Erythraea ramosissima	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1037. „ latifolia	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1038. „ spicata	—	—	—	.	.	.	.	.	—	—	—	—	.	.	.	.	—	.	.
1039. „ maritima	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
89. Apocynaceae.																			
1040. Carissa edulis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1041. Vinca maior	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1042. Plumiera rubra	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1043. Nerium Oleander	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.
90. Asclepiadaceae.																			
1044. Periploca graeca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1045. „ laevigata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1046. „ aphylla	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.
1047. Glossonema Boveanum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1048. Daemia tomentosa	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1049. Cynanchum acutum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1050. Solenostemma Argel	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1051. Oxystelma esculentum var. Alpini	.	.	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1052. Calotropis procera	.	.	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	.	.
1053. Asclepias fruticosa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1054. „ sinaica	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1055. „ curassavica	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1056. Leptadenia heterophylla	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1057. „ pyrotechnica	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
1058. Caralluma europaea	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
91. Convolvulaceae.																			
1059. Cressa cretica	—	—	—	—	—	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1060. Seddera latifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1061. Calystegia hederacea	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1062. Convolvulus Hystrix	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1063. „ lanatus	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1064. „ Dorycnium	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1065. „ lineatus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1066. „ oleaefolius	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1067. „ Schimperi	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1068. „ secundus	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	?	—	.	.
1069. „ pilosellaefolius	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	.	—	.	.
1070. „ microphyllus	.	.	.	.	.	.	.	—	—	—	—	—	—	—	—	.	—	.	.
1071. „ althaeoides	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1072. „ arvensis	—	—	—	—	—	.	.	—	—	—	—	.	.	.	.	.	—	.	.
1073. „ fatmensis	.	.	—	—	—	—	.	—	—	—	—	.	.	.	.	.	—	.	.
1074. „ siculus	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	—	.	.
1075. Ipomoea eriocarpa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1076. „ stolonifera	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1077. „ Batatas	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1078. „ palmata	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	.	—	.
1079. „ hederacea	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1080. Cuscuta planiflora	—	—	—	—	—	.	.	.	.	.	.	—	.	.	.	.	—	.	.
1081. „ brevistyla	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1082. „ Epilinum	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1083. „ arabica	—	.	—	—	—	.	.	—	—	—	.	.	.	—	—	.	—	.	.
1084. „ monogyna	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
92. Polemoniaceae.																			
1085. Phlox paniculata	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
93. Hydrophyllaceae.																			
1086. Hydrolea guineensis	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
94. Borraginaceae.																			
1087. Cordia Myxa	—	—	.	.	.	—	.	.	.	.	—	.	.	.	.	.	.	.	.
1088. „ crenata	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1089. „ Gharaf	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	—	.
1090. Heliotropium zeylanicum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1091. „ supinum	—	—	—	—	—	.	.	.	.	.	—	.	.	.	.	.	.	.	.
1092. „ pallens	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.
1093. „ ovalifolium	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1094. „ europaeum	—	—	—	—	—	.	.	—	—	—	—	.	.	.	.	.	.	.	.
„ „ var. tenuiflorum	—	—	—	—	.	.	—	—	—	—	—	.	.	.	.	.	.	.	.
1095. „ villosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1096. „ luteum	.	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
1097. „ arbaïnense	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1098. „ undulatum	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1099. „ persicum	.	.	—	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1100. Trichodesma africanum	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.	.
1101. „ Ehrenbergii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.
1102. Paracaryum Boissieri	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.
1103. „ rugulosum	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.
1104. Omphalodes linifolia	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
1105. Lappula spinocarpos	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
1106. „ sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.
1107. Echiochilon fruticosum	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
1108. Symphytum orientale	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1109. Borrago officinalis	—	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1110. Anchusa undulata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1111. „ strigosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1112. „ aggregata	—	—	.	—	.	.	.	—	.	—	—	.	.	.	.	.	.	.	.
1113. „ hispida	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.
1114. „ aegyptiaca	—	.	—	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.
1115. „ Milleri	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.
1116. Nonnea Viviamii	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.
1117. Alkanna tinctoria	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.
1118. Lithospermum arvense	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1119. „ incrassatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1120. „ tenuiflorum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1121. „ callosum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1122. Arnebia hispidissima	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1123. „ decumbens	.	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.
1124. „ linearifolia	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1125. „ tinctoria	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.
1126. Echium italicum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1127. „ sericeum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1128. „ longifolium	.	.	—	—	—	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1129. „ Rauwolfii	—	.	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	.	.
1130. „ setosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1130. Echium setosum var. parviflorum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
1131. Onosma frutescens	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1132. Podonosma galalense	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
95. Verbenaceae.																			
1133. Lantana Camara	—	—	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
1134. Lippia nodiflora	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1135. Verbena supina	—	.	—	—	—	.	.	.	.	—	.	.	.	.	.	.	—	.	.
1136. „ officinalis	.	.	—	—	.	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1137. „ bonariensis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1138. Duranta Plumierii	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1139. Clerodendron Acerbianum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1140. Avicennia officinalis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
96. Labiatae.																			
1141. Ocimum basilicum	—	—	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
1142. Plectranthus Schimperi	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1143. Lavandula atriplicifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	?	.	—	.	.
1144. „ multifida	.	.	.	.	.	.	.	.	.	.	.	.	.	.	?	.	—	.	.
1145. „ pubescens	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1146. „ coronopifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1147. Mentha sylvestris	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. niliaca	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1148. „ Pulegium	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1149. Origanum Majorana	—	—	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
1150. Thymus Bovei	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1151. „ capitatus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1152. Micromeria nervosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1153. Melissa officinalis	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1154. Salvia bracteata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1155. „ spinosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1156. „ palaestina	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1157. „ brachycalyx	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1158. „ Verbenaca var. vernalis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1159. „ lanigera	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1160. „ aegyptiaca	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
„ „ var. pumila	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1161. „ judaica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1162. Rosmarinus officinalis	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1163. Marrubium Alysson	—	—	.	.	.	.	.	.	.	.	.	—	—	.	.	.	—	.	.
1164. „ vulgare	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1165. Stachys aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1166. Lamium amplexicaule	—	.	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1167. Ballote damascena	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1168. Ballote undulata	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1169. Leucas inflata	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1170. Phlomis floccosa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1171. Leonotis Leonurus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1172. Otostegia microphylla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1173. Eremostachys laciniata	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1174. Prasium maius	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1175. Teucrium leucocladum	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1176. „ Polium	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1177. „ pilosum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1178. Ajuga Iva	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
97. Solanaceae.																			
1179. Nicandra physaloides	?	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1180. Solanum nigrum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
„ „ var. induratum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. humile	—	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1181. „ Lycopersicum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1182. „ macranthum	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1183. „ insanum	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.
1184. „ Melongena	—	—	—	—	—	.	—	—	—	—	—	.	—	—	.	.	—	.	.
1185. Physalis peruviana	—	—	—	—	—	.	—	—	—	—	—	.	—	—	.	.	—	.	.
1186. Withania somnifera	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1187. Capsicum frutescens	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1188. Lycium Schweinfurthii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1189. „ Aschersonii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
1190. „ europaeum	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1191. „ arabicum	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1192. „ vulgare	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1193. Datura Metel	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1194. „ fastuosa	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1195. „ suaveolens	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1196. „ Stramonium	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1197. Hyoscyamus muticus	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1198. „ albus	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
„ „ var. desertorum	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1199. „ pusillus	.	—	—	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1200. „ Boveanus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1201. Nicotiana Tabacum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1202. „ plumbaginifolia var. chlorantha	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1203. „ glauca	—	.	—	.	.	—	.	.	.	.	.	.	—	.	.	.	—	.	.
1204. „ rustica	—	—	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	—	.
98. Scrophulariaceae.																			
1205. Anticharis glandulosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1206. Verbascum Letourneuxii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
1207. „ sinaiticum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1208. „ sinuatum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1209. Linaria spuria	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1210. „ Elatine	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
„ „ var. villosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1211. „ aegyptiaca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1212. „ Kneuckeri	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1213. „ floribunda	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1214. „ bipartita	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1215. „ micrantha	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1216. „ Haelava	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1217. „ ascalonica	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1218. „ albifrons	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219. Antirrhinum Orontium	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1220. Scrophularia deserti	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1221. „ xanthoglossa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1222. „ hypericifolia	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1223. Sutera glandulosa	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	•
1224. Lindenbergia sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1225. Herpestes bonnieria	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1226. Peplidium maritimum	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1227. Limosella aquatica	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1228. Veronica anagallis	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	.	.	.
1229. „ angalloides	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1230. „ Beccabunga forma minima	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1231. „ Buxbaumii	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1232. Striga orobanchoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1233. „ hermonthica	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1234. „ lutea	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.
1235. „ euphrasioides	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1236. Eufragia viscosa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
99. Bignoniaceae.																			
1237. Tecomaria capensis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	•
100. Pedaliaceae.																			
1238. Sesamum indicum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	•
101. Orobanchaceae.																			
1239. Cistanche lutea	—	—	—	.	.	.	—	—	—	—	—	.	—	.	—	.	—	.	•
1240. Orobanche ramosa	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1241. „ Schweinfurthii	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1242. „ Mutelii	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1243. „ aegyptiaca	—	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	•

Names of species	M.		N.				O					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1244. Orobanche cernua	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1245. „ crenata	—	—	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
1246. „ versicolor	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1247. „ minor	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
102. Lentibulariaceae.																			
1148. Utricularia reflexa	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1249. „ stellaris	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1250. „ exoleta	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
103. Globulariaceae.																			
1251. Globularia arabica	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
104. Acanthaceae.																			
1252. Blepharis edulis	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1253. Acanthus arboreus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
105. Plantaginaceae.																			
1254. Plantago maior	—	—	—	—	—	.	—	—	.	—	.	.	.	.	.	.	—	.	.
1255. „ albicans	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1256. „ cylindrica	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1257. „ amplexicaulis	.	.	—	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1258. „ Bellardii	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1259. „ ovata	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1260. „ notata	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	.
1261. „ Lagopus	—	.	—	.	—	.	—	—	.	—	—	.	.	.	.	.	—	.	.
„ „ var. lusitanica	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1262. „ ciliata	.	.	.	.	.	.	.	.	.	.	.	—	.	—	—	.	—	.	.
1263. „ crypsioides	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1264. „ crassifolia	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1265. „ Coronopus	—	—	—	—	—	.	—	—	.	.	.	—	.	.	.	—	—	.	.
„ „ var. filiformis	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1266. „ ramosa	.	.	—	.	.	.	.	.	.	.	—	.	—	.	.	.	—	.	.
1267. „ exigua	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1268. „ stricta	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	.
1269. „ phaeostoma	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1270. „ Psyllium	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1271. „ squarrosa var. brachystachys	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
106. Rubiaceae.																			
1272. Oldenlandia Schimperi	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.
1273. „ capensis	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1274. „ hedyotoides	.	.	—	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1275. Gaillonia calycoptera	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1276. Rubia tinctorum	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1277. Callipeltis aperta	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1278. Vaillantia hispida	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1279. Galium tricorne	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	—	.	.
1280. „ spurium	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1281. „ nigricans var. brachychaetum	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1282. „ murale	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. alexandrinum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1283. „ lanatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
1284. Crucianella herbacea	—	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1285. „ membranacea	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1286. „ maritima	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
107. Caprifoliaceae.																			
1287. Sambucus nigra	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1288. Viburnum opulus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1289. Lonicera Caprifolium	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
108. Valerianaceae.																			
1290. Centranthus macrosiphon	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1291. Valerianella Szovitsianus	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1292. „ Petrovichii	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
109. Dipsacaceae.																			
1293. Cephalaria syriaca	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1294. Pterocephalus papposus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1295. Scabiosa arenaria	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1296. „ eremophila	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1297. „ Aucheri	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
110. Cucurbitaceae.																			
1298. Lagenaria vulgaris	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.	.	—	.
1299. Luffa cylindrica	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1300. Cucumis sativus	—	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	—	.
1301. „ prophetarum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	—	.
1302. „ Melo	—	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	—	.
„ „ var. Chate	—	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	—	—	.
1303. Citrullus vulgaris	—	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	—	.
„ „ var. colocynthoides	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1304. „ Colocynthis	—	—	—	.	—	.	—	—	—	—	—	—	.	.	—	.	.	—	.
1305. Momordica balsamina	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1306. Cucurbita maxima	—	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.
1307. „ Pepo	—	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.
1308. Bryonia cretica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. t.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
111. Campanulaceae.																			
1309. Wahlenbergia Cervicina	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1310. „ etbaica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1311. Campanula sulphurea	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1312. „ Erinus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1313. „ dimorphantha	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1314. Specularia Speculum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1315. Sphenoclea zeylanica	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
112. Compositae.																			
1316. Ethulia conyzoides	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1317. Ageratum conyzoides	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ conyzoides var. mexicanum	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1318. Eupatorium cannabinum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1319. Aster radula	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1320. „ integrifolius	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1321. „ Novi-Belgii	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1322. Erigeron canadensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1323. „ Karvinskianus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1324. „ alpinus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1325. „ crispus	—	.	—	—	—	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1326. Conyza Bovei	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1327. „ aegyptiaca	.	.	—	—	—	.	.	.	.	—	.	.	.	—	.	.	—	.	.
1328. „ Dioscorides	—	—	—	—	—	.	—	—	—	—	—	.	—	—	.	.	—	.	.
1329. Grangea maderaspatana	.	.	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1330. Ceruana pratensis	—	.	—	.	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1331. Laggera aurita	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.
1332. Sphaeranthus suaveolens	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1333. „ nubicus	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1334. Evax contracta	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1335. „ anatolica	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1336. Ifloga spicata	—	—	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	.	.
1337. Filago spathulata var. prostrata	—	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	.
1338. „ mareotica	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1339. Gymnarhena micrantha	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1340. Lasiopogon muscoides	—	—	.	.	.	.	—	.	.	.	.	.	—	—	.	.	—	.	.
1341. Phagnalon nitidum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1342. „ Barbeyanum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1343. „ rupestre	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1344. Gnaphalium luteo-album	—	—	—	—	—	—	—	—	—	—	—	.	—	—	.	.	—	.	.
1345. „ pulvinatum	.	.	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1346. „ crispatulum	.	.	—	.	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1347. „ indicum	.	.	—	.	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1348. Helichrysum conglobatum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1349. Helichrysum Billardierii	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1350. Leyssera capillifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1351. Inula crithmoides	—	—	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1352. „ viscosa	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1353. Varthemia montana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1354. „ candicans	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1355. Iphiona mucronata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1356. „ scabra	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1357. Pulicaria arabica	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1358. „ sicula	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1359. „ undulata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1360. „ inuloides	.	.	—	—	—	.	—	—	—	—	—	.	.	—	.	.	—	.	.
1361. „ crispa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
1362. Anvillea Garcinii	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	—	.	.
1363. Pallenis spinosa	—	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1364. Odontospermum pygmaeum	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1365. „ graveolens	.	—	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
1366. Ambrosia maritima	—	—	—	.	—	.	.	.	.	—	.	.	.	.	.	.	—	.	.
1367. Xanthium strumarium	.	—	—	.	—	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1368. „ spinosum	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1369. Zinnia pauciflora	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1370. Eclipta alba	—	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1371. Verbesina encelioides	—	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	.
1372. Helianthus debilis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1373. „ argyrophyllus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1374. „ annuus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1375. „ tuberosus	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1376. Coreopsis chrysantha	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1377. Bidens pilosus	—	.	—	.	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1378. Flaveria Contrayerba	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1379. Tagetes minuta	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1380. Santolina chamaecyparissus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1381. Anthemis microsperma	.	—	.	.	.	.	—	.	.	.	.	—	.	.	.	.	—	.	.
1382. „ indurata	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	—
1383. „ deserti	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1384. „ melampodina	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.
„ „ var. brachyota	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1385. „ Chia	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1386. „ Cotula	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1387. „ retusa	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1388. „ pseudocotula	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1389. „ rotata	—	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1390. „ mixta	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1391. Anacyclus alexandrinus	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1392. Achillea Santolina	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1393. „ fragrantissima	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1394. Diotis maritima	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1395. Chrysanthemum coronarium	—	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. discolor	—	.	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1396. „ Parthenium	—	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1397. Matricaria Chamomilla	—	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1398. „ aurea	—	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.
1399. „ auriculata	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1400. „ tridentata	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1401. Artemisia monosperma	—	—	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1402. „ Herba-alba	—	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1403. „ judaica	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1404. „ arborescens	—	—	—	—	—	—	.	.	.	.	.	—	—	—	—	.	—	.	.
1405. Cotula anthemoides	—	—	—	—	—	—	.	.	.	.	.	—	—	—	—	.	—	.	.
1406. „ cinerea	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1407. Senecio belbeysius	.	.	—	.	—	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1408. „ flavus	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	.	.
1409. „ vulgaris	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1410. „ aegyptius	.	.	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1411. „ coronopifolius	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
1412. Calendula palaestina var. brachyrrhincha		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1413. „ bicolor	—	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	—	.	.
1414. „ persica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1415. „ aegyptiaca	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. suberostris	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1416. Gundelia Tournefortii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1417. Echinpos Hussonii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1418. „ cornigerus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1419. „ glaberrimus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1420. „ spinosus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1421. Carlina involucrata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. mareotica	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. involucrata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1422. Atractylis flava	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	.	.
„ „ var. citrina	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1423. „ Mernephthae	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1424. „ cancellata	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1425. Carduus pycnocephalus	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1426. „ argentatus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1427. Cirsium syriacum	—	.	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1428. Cynara Cardunculus	—	—	—	—	—	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1429. „ Sibthorpiana	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.
1430. „ Scolymus	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	.	.
1431. Silybum Marianum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
„ „ var. pygmaeum	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1432. Onopordon Sibthorpianum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1433. „ ambiguum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1434. Zoegea purpurea	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.
1435. Crupina crupinastrum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1436. Centaurea Lippii	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.
1437. „ crupinoides	—	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.
1438. „ pumila	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1439. „ Duriaei	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1440. „ depressa	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1441. „ pullata	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1442. „ scoparia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1443. „ eryngioides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1444. „ Calcitrapa	—	—	—	—	—	.	—	—	—	—	—	.	.	—	—	.	.	.	.
1445. „ furfuracea	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.
1446. „ alexandrina	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1447. „ pallescens	—	—	—	—	—	.	.	.	.	.	.	—	—	—	—	.	.	.	.
„ „ var. brevicaulis	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.
1448. „ solstitialis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1449. „ aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1450. „ glomerata	—	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.
„ „ var. glabriceps	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1451. „ dimorpha	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452. Carthamus lanatus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1453. „ glaucus var. syriacus	—	—	—	—	—	.	.	.	.	.	.	—	.	.	.	.	.	.	.
„ „ var. alexandrinus	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
„ „ var. tenuis	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.
1454. „ mareoticus	—	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1455. „ tinctorius	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
„ „ var. inermis	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1456. Carduncellus eriocephalus	.	.	.	.	.	.	.	.	.	.	.	—	—	—	—	.	—	—	—
1457. Cnicus arvensis	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1458. Scolymus maculatus	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1459. „ hispanicus	—	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	—	—	—
1460. Cichorium Intybus	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1461. „ pumilum	.	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1462. „ endivia	—	—	—	—	—	.	—	—	—	—	—	.	.	.	.	.	—	—	—
1463. Koelpinia linearis	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	—	—	—
1464. Hyoseris lucida	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1465. Rhagadiolus stellatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1466. Hedypnois rhagadioloides	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1467. Urospermum picroides	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	—	—
1468. Leontodon hispidulum	—	—	—	—	—	.	.	.	.	.	.	—	—	—	—	.	—	—	—
1469. „ tuberosum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	—
1470. Picris Sprengeriana	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	—	—
„ „ var. altissima	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1471. „ strigosa	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.

Names of species	M.		N.				O.					D.				R.	Total Native	Naturalized	Endemic
	M. ma.	M. p.	N. d.	N. f.	N. v.	N. v. mer.	Siwa	Little Oasis	Farâfra	Dakhel	Great Oasis	D. l.	D. i.	D. a. sept.	D. a. mer.				
1472. Picris sulphurea	.	.	—	—	—	.	.	.	.	—	.	—	.	—	.	.	—	.	.
1473. „ coronopifolia	—	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	.
„ „ var. pilosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
1474. „ echioides	.	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1475. Tragopogon glaber	—	.	—	—	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.
1476. Scorzonera alexandrina	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1477. „ Schweinfurthiana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1478. „ hispanica	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1479. Heteroderis aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.
1480. Launaea mucronata	—	.	—	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1481. „ tenuiloba	.	—	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	—	.
1482. „ Cassiniana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1483. „ angustifolia	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1484. „ nudicaulis	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	—	.
1485. „ fallax	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1486. „ massavensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1487. „ glomerata	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	—	.
1488. „ spinosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1489. Sonchus oleraceus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	—	—	.
1490. „ asper	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1491. „ glaucescens	—	.	—	—	—	.	.	.	.	—	.	.	.	.	.	.	—	—	.
1492. „ maritimus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1493. „ arvensis	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1494. Lactuca scariola	.	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	—	—	.
1495. „ saligna	.	.	—	—	—	.	.	.	.	.	.	.	—	—	.	.	—	—	.
1496. „ orientalis	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	—	.
1497. Reichardia tingitana	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	—	.
1498. „ picroides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1499. Crepis bulbosa	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.
1500. „ parviflora	.	.	—	—	.	.	.	—	.	.	.	.	.	.	.	.	—	—	.
1501. „ radicata	—	—	—	—	—	.	—	—	—	—	—	—	—	—	—	.	—	—	.
1502. „ aspera	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	—	.
1503. „ bifida	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	—	.

Appendix IV.

Tabular View of the Distribution of the Egyptian Plants in the Mediterranean basin.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1. Polypodiaceae.																		
1. Adiantum capillus-Veneris	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	Common in the temperate zones.
2. Marsiliaceae.																		
2. Marsilia diffusa	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	Also known from Senegambia and tropical America.
3. „ aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
3. Gnetaceae.																		
4. Ephedra alte	.	.	.	.	.	.	.	.	—	.	.	.	—	.	.	.	.	Also known from Somal-land.
5. „ alata	.	.	.	.	.	.	.	.	—	—	—	—	—	.	.	.	.	
4. Typhaceae.																		
6. Typha angustata	.	.	.	—	.	.	.	.	.	.	—	—	—	—	—	—	.	Northern India, Nubia and Abyssinia.
7. „ latifolia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	Almost cosmopolitan.
5. Potamogetonaceae.																		
8. Zostera nana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Common in temperate seas.
9. Posidonia oceanica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Mediterranean and European shores of the Atlantic.
10. Potamogeton natans	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nearly all the temperate climates.
„ „ var. serotinus	.	.	.	.	.	.	.	.	.	—	—	—	—	—	.	.	.	
11. „ lucens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nearly all the temperate climates.
12. „ crispus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Common in the northern hemisphere.
13. „ pusillus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cosmopolitan.
14. „ pectinatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
15. Ruppia maritima	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Temperate and subtropical countries.
„ „ var. spiralis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ var. rostrata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
16. Cymodocea nodosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Mediterranean Sea; African Atlantic coasts.

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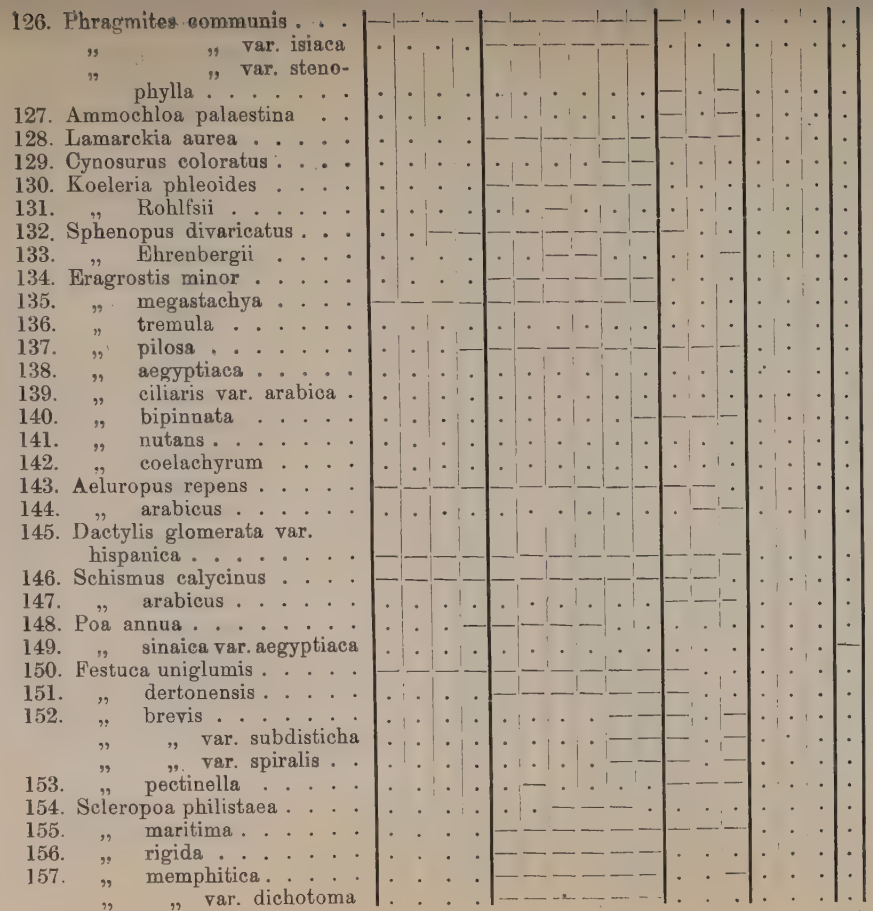
Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
42. Andropogon laniger	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	Egyptian Sudan.
43. Tragus racemosus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Throughout warm countries.
44. Paspalum Digitaria	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	American origin.
45. Panicum sanguinale	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical and warm countries.
„ „ aegypticum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Common in warm countries.
„ „ ciliare	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
46. „ Crus galli	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ „ echinatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Most hot and warm countries.
„ „ „ Sieberianum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ „ stoloniferum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
47. „ colonum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ arabicum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Common in Tropical and subtropical regions.
„ „ glaucum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ repens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
48. „ prostratum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical region of both hemispheres.
48a. „ oryzetorunn (?)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
49. „ Isachne	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	India and Abyssinia.
50. „ geminatum	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	Africa, Arabia, India and America.
51. „ obtusifolium	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	
52. „ muticum	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	
53. „ miliaceum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Of East-Indian origin.
54. „ turgidum	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	Abyssinia, Nubia and Socotra.
55. „ repens	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
„ „ leiogonum	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.	.	.	
56. „ coloratum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nyassaland, Cape Colony and lower Zambesi.
57. „ Petiverii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical of the old World.
58. „ glaucum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Warm and temperate regions.
59. „ viride	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
60. „ verticillatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe, Africa, America, Australia.
„ „ „ var. ambigua	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

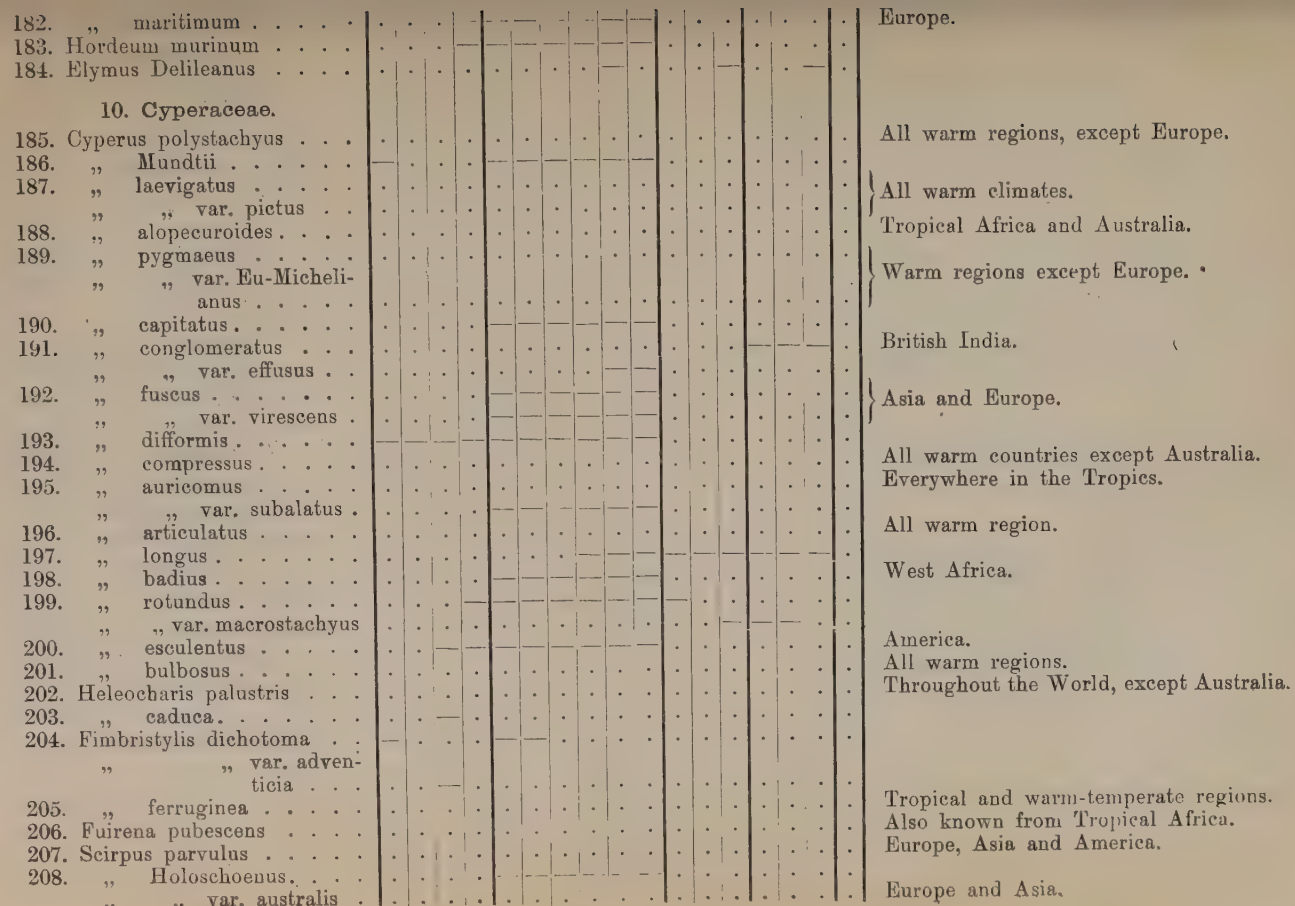
61. Cenchrus montanus	Tropical Africa, Arabia and India.
62. Pennisetum americanum	Cultivated in Africa and India.
63. „ dichotomum	From Arabia to Persia.
64. „ ciliare	From East-India.
65. „ orientale	Persia.
66. Tricholaena Teneriffae	Abyssinia.
67. Oryza australis	Tropical and subtropical regions.
68. Lygeum spartum	
69. Phalaris canariensis	
70. „ minor	
„ „ gracilis	
71. „ paradoxa	
„ „ var. praemorsa	Abyssinia.
72. Aristida adscensionis	Most hot countries.
„ „ var. pumila	
73. „ Schweinfurthii	Tropical Africa.
74. „ funiculata	Tropical Africa and Arabia.
75. „ obtusa	Arabia and South Africa.
76. „ ciliata	Tropical and South Africa.
77. „ plumosa	Nubia.
78. „ brachypoda	
79. „ lanata	
80. „ caloptila	
81. „ hirtigluma	Tropical Arabia and Erythraea.
82. „ acutiflora	
83. „ Zittelii	
84. „ pungens	Turkestan, Sibiria, Nubia.
85. „ scoparia	
86. Stipa parviflora	
87. „ tortilis	
88. „ gigantea var. pellita	
89. Oryzopsis miliacea	North Atlantic Islands.
90. Heleochloa schoenoides	Asia and Sibiria.
91. „ alopecuroides	Europe and Asia.
92. Sporobolus spicatus	Nubia, Abyssinia, Arabia.
93. „ pungens	Senegal.
94. Polypogon monspeliensis	Abyssinia.
95. „ maritimus	
96. Agrostis verticillata	Arabia and Erythraea.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
97. Calamagrostis arenaria var. australis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe and America.
98. Triplachne nitens	—	.	.	.	.	.	.	—	—	—	.	.	.	.	.	.	.	Cilicia and Cyperus.
99. Lagurus ovatus	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
100. Crypsis aculeata	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
101. Alopecurus myosuroides	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	Common in Europe and Asia.
102. Weingaertneria articulata	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
103. Trisetum pumilum	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Arabia.
104. „ macrochaetum	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	
105. „ glumaceum	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	
106. „ lineare	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
107. Avena sterilis	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
108. „ fatua	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
109. „ barbata	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
110. „ Wiestii	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
111. Danthonia Forskâlei	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	Arabia.
112. Crynodon dactylon	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cosmopolitan.
113. Schoenefeldia gracilis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
114. Chloris virgata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Arabia and South Africa.
115. Tetrapogon villosus	.	.	.	.	.	.	.	—	—	—	—	.	.	.	.	.	.	Arabia and Erythraea.
116. Dinebra retroflexa	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	Arabia and British India.
117. Eleusine indica	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	Tropics of the old World.
118. „ coracana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Arabia and Africa.
119. Dactyloctenium aegyptiacum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and America.
120. Pappophorum brachystachyum	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	Arabia und Africa.
121. Boissiera Pumilio	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Persia.
122. Schmidtia quniqueseta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
123. Diplachne fusca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Warm regions of the World.
124. „ nana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nubia and South Africa.
125. Arundo Donax	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	Asia.



126. Phragmites communis	
„ „ var. isiaca	
„ „ var. steno-phylla	
127. Ammochloa palaestina	
128. Lamarckia aurea	Punjab.
129. Cynosurus coloratus	Cape.
130. Koeleria phleoides	N. W. India.
131. „ Rohlfsii	
132. Sphenopus divaricatus	
133. „ Ehrenbergii	
134. Eragrostis minor	
135. „ megastachya	
136. „ tremula	Abyssinia and Senegal.
137. „ pilosa	Sudan.
138. „ aegyptiaca	Abyssinia.
139. „ ciliaris var. arabica	Nubia
140. „ bipinnata	To India.
141. „ nutans	Upper Nile region.
142. „ coelachyrum	Nubia.
143. Aeluropus repens	
144. „ arabicus	Arabia.
145. Dactylis glomerata var. hispanica	
146. Schismus calycinus	
147. „ arabicus	
148. Poa annua	Europe and Asia.
149. „ sinaica var. aegyptiaca	
150. Festuca uniglumis	
151. „ dertonensis	Europe and Asia.
152. „ brevis	
„ „ var. subdisticha	
„ „ var. spiralis	
153. „ pectinella	
154. Scleropoa philistaea	
155. „ maritima	Europe.
156. „ rigida	Western Europe and Asia.
157. „ memphitica	
„ „ var. dichotoma	

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
158. Bromus villosus	·										·	·	·	·	·	·	·	Europe.
159. „ tectorum											·	·	·	·	·	·	·	
160. „ matritensis var. Delilei											·	·	·	·	·	·	·	
161. „ rubens	·	·	·	·							·	·	·	·	·	·	·	
162. „ fasciculatus	·										·	·	·	·	·	·	·	
163. „ scoparius	·										·	·	·	·	·	·	·	
164. „ alopecurus	·	·	·	·							·	·	·	·	·	·	·	
165. „ macrostachys var. lanuginosus	·										·	·	·	·	·	·	·	
166. „ hordaceus var. glomeratus	·												·	·	·	·	·	
167. „ japonicus var. aegyptiacus	·	·	·	·							·	·	·	·	·	·	·	Europe and Asia.
168. Brachypodium distachyum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
169. Lolium temulentum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
170. „ multiflorum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Temperate Europe and Asia.
171. „ rigidum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
„ „ var. compressum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
172. „ perenne	·	·									·	·	·	·	·	·	·	Europe and Asia.
173. Agropyrum junceum var. Sartorii	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Abyssinia.
174. „ elongatum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
175. Triticum vulgare	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
176. Aegilops ovata var. triaristata	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
177. „ truncialis	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
„ „ var. brachyathera	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
178. „ bicornis	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
179. „ longissima	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
180. Lepturus incurvatus	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
181. Hordeum vulgare var. spontaneum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	



182.	„ maritimum	Europe.
183.	Hordeum murinum	
184.	Elymus Delileanus	
	10. Cyperaceae.	
185.	Cyperus polystachyus	All warm regions, except Europe.
186.	„ Mundtii	
187.	„ laevigatus	All warm climates.
	„ „ var. pictus	Tropical Africa and Australia.
188.	„ alopecuroides	
189.	„ pygmaeus	Warm regions except Europe.
	„ „ var. Eu-Micheli-anus	
190.	„ capitatus	
191.	„ conglomeratus	British India.
	„ „ var. effusus	
192.	„ fuscus	Asia and Europe.
	„ „ var. virescens	
193.	„ difformis	All warm countries except Australia.
194.	„ compressus	Everywhere in the Tropics.
195.	„ auricomus	
	„ „ var. subalatus	All warm region.
196.	„ articulatus	
197.	„ longus	West Africa.
198.	„ badius	
199.	„ rotundus	
	„ „ var. macrostachyus	America.
200.	„ esculentus	All warm regions.
201.	„ bulbosus	Throughout the World, except Australia.
202.	Heleocharis palustris	
203.	„ caduca	
204.	Fimbristylis dichotoma	
	„ „ var. adven-ticia	
205.	„ ferruginea	Tropical and warm-temperate regions.
206.	Fuirena pubescens	Also known from Tropical Africa.
207.	Scirpus parvulus	Europe, Asia and America.
208.	„ Holoschoenus	
	„ „ var. australis	Europe and Asia.

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209. Scirpus supinus var. uninodis																		
„ „ var. minimus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
210. „ articulatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa, India, Malaya.
211. „ corymbosus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
212. „ triqueter	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe, Asia.
213. „ mucronatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe, Asia, Australia.
214. „ litoralis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Warmer parts of the Old World.
215. „ maritimus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	All warm zones.
216. Schoenus nigricans	.	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	Africa, Asia and America.
217. Carex stenophylla var. pachystylis	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
218. „ divisa	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	Europe and South Africa.
219. „ extensa	.	.	.	.	—	—	—	—	—	—	—	—	—	—	—	.	.	
11. Palmae.																		
220. Phoenix dactylifera	—	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	
221. Cocos nucifera	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Origin of America?
222. Hyphaene thebaica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Arabia.
12. Araceae.																		
223. Pisticia stratiotes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Warm regions of the Earth.
224. Arisarum vulgare var. Veslingii	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	
225. Biarum Oliveri	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
226. Helicophyllum crassipes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
13. Lemnaceae.																		
227. Lemna polyrrhiza	—	—	—	—	.	.	—	.	—	—	—	—	—	.	.	.	.	} Most temperate regions.
228. „ gibba	—	—	—	—	.	.	—	.	—	—	—	—	—	.	.	.	.	
229. „ minor	.	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	
230. „ paucicostata	.	.	.	.	.	.	—	—	—	—	—	—	—	.	.	.	.	Warmer parts of the World.

231.	Wolffia hyalina	Tropical Africa.
	14. Commelinaceae.	
232.	Commelina Boissieri	Erythraea and Abyssinia.
	15. Pontederiaceae.	
233.	Eichhornia crassipes	Tropical Africa and America.
	16. Juncaceae.	
234.	Juncus glaucus var. acutissimus	Cape.
235.	„ maritimus var. arabicus	Afghanistan.
236.	„ acutus	North temperate Zone.
237.	„ Fontanesii	Central Africa.
238.	„ bufonius	Cosmopolitan.
	„ bufonius var. fasciculatus	Cosmopolitan.
239.	„ subulatus	
	17. Liliaceae.	
240.	Colchicum Ritschii	
241.	„ Szovitsii	
242.	„ Guessfeldtianum	
243.	Androcymbium punctatum	
244.	„ palaestinum	
245.	Aloe vera	Tropical Eastern Africa.
246.	Tulipa montana	
247.	Gagea reticulata var. tenuifolia	
	„ reticulata var. fibrosa	Western Asia.
248.	Allium ampeloprasum	Europe.
249.	„ sphaerocephalum	
	„ „ var. viridi-album	
250.	„ curtum	
251.	„ Barthianum	
252.	„ Cepa	Cosmopolitan.
253.	„ paniculatum var. pallens	

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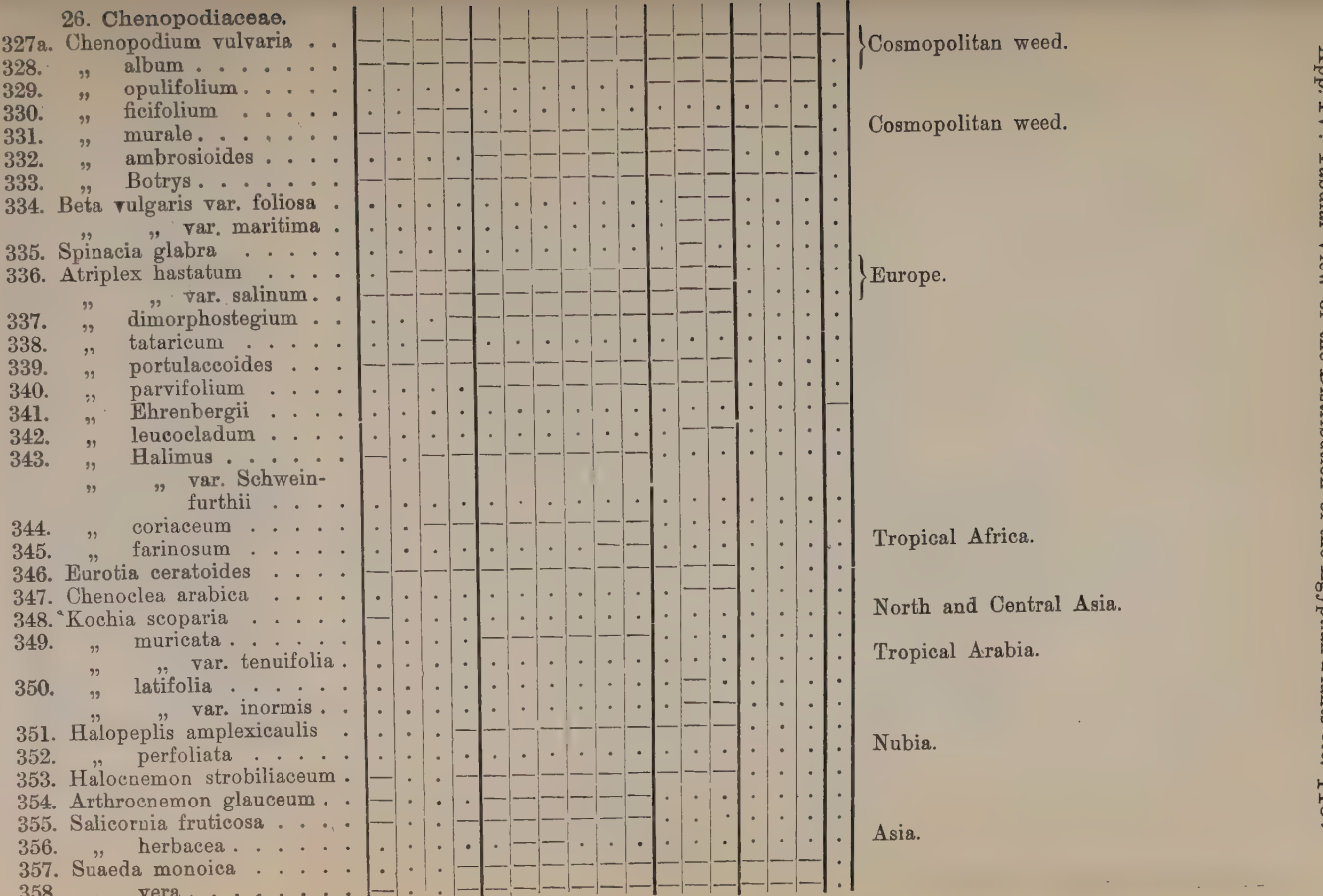
254. Allium myrianthum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
255. „ desertorum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
256. „ Erdelii	.	.	.	.	.	.	.	.	.	.	.			.	.	.		
„ „ var. roseum	.	.	.	.	.	.	.	.	.	.	.			.	.	.		
257. „ roseum var. Tourneuxii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
258. „ Blomfieldianum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
259. „ papillare	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
260. „ neapolitanum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
261. „ Aschersonianum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
262. „ Crameri	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
263. Nothoscordon inodorum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical America.
264. Dipcadi erythraeum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
265. Urginea undulata																		
266. „ maritima																		
267. Muscari comosum																		
268. „ bicolor	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
269. „ racemosum																	.	Western Asia.
270. „ Letourneuxii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
271. „ parviflorum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
272. Hyacinthus sessiliflorus	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.		
273. „ mauritanicus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
274. „ flexuosus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
275. „ macrobotrys	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
276. Scilla peruviana																		
277. Ornithogalum tenuifolium var. trichophyllum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
278. Asphodelus microcarpus																	.	Asia.
279. „ tenuifolius var. micranthus																		
280. „ viscidulus	.	.	.	.	.	.	.	.	.	.				.	.	.		

281. Asparagus officinalis	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	·	·	
282. „ stipularis	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
„ „ var. brachyclados	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
283. Ruscus hypophyllum	·	·	—	—	—	—	—	—	—	—	·	·	·	·	·	·	·	Europe.
18. Amaryllidaceae.																		
284. Narcissus Tagetta	—	—	—	—	·	·	·	·	·	·	·	·	—	·	·	·	·	To China and Japan.
285. Pancratium arabicum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
286. „ Sickenbergerii	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	
287. „ aegyptiacum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
288. „ maritimum	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
19. Iridaceae.																		
289. Iris Helenae	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	
290. „ Sisyrinchium	—	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
„ „ var. monophylla	·	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	
291. Gladiolus segetum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
„ „ var. Guepini	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
20. Cannaceae.																		
292. Canna indica	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	A native of Tropical America.
21. Salicaceae.																		
293. Salix Safsaf	·	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	
294. „ tetrasperma	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	From India to the Himalaya.
295. „ babylonica	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Caucasia and Asia.
296. Populus euphratica	—	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	Tropical Africa, Western and Central Asia.
22. Moraceae.																		
297. Morus alba	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Origin of temperate Asia.
298. Ficus carica	·	·	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	
299. „ pseudosycomorus	·	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	
300. „ Sycomorus	·	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	
„ „ var. citrina	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
301. Cannabis sativa	·	·	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	
23. Urticaceae.																		
302. Urtica urens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Europe and temperate Asia.
303. „ pilulifera	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Common in Europe.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
304. Parietaria alsinifolia	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	South and Western Europe.
305. „ judaica	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	—	.	
306. Forskålia tenacissima	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.	
24. Santalaceae.																		
307. Thesium humile	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	South Europe.
25. Polygonaceae.																		
308. Calligonum comosum	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
309. Emex spinosus	.	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
310. Rumex pulcher	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
311. „ bucephalophorus	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
312. „ dentalus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
„ „ var. pleiodon	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
313. „ aegyptiacus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	—	
314. „ pictus	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
315. „ vesicarius	.	.	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	Somal-Land.
„ „ var. roseus	.	.	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
316. Atraphaxis spinosa var. sinaica	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
317. Polygonum Bellardi	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
318. „ aviculare	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	Cosmopolitan.
„ „ var. litorale	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	
319. „ plebejum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Upper Nile and Mozambic District.
320. „ maritimum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
321. „ equisetiforme	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
322. „ serrulatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Common in Africa.
323. „ persicaria	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe and Central Russian Asia.
324. „ Convolvulus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
325. „ limbatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Asia.
326. „ lanigerum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Africa, Asia and North Australia.
327. „ senegalense	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Asia.


26. Chenopodiaceae.
327a. Chenopodium vulvaria
328. „ album
329. „ opulifolium
330. „ ficifolium
331. „ murale
332. „ ambrosioides
333. „ Botrys
334. Beta vulgaris var. foliosa
„ „ var. maritima
335. Spinacia glabra
336. Atriplex hastatum
„ „ var. salinum
337. „ dimorphostegium
338. „ tataricum
339. „ portulaccoides
340. „ parvifolium
341. „ Ehrenbergii
342. „ leucocladum
343. „ Halimus
„ „ var. Schweinfurthii
344. „ coriaceum
345. „ farinosum
346. Eurotia ceratoides
347. Chenoclea arabica
348. Kochia scoparia
349. „ muricata
„ „ var. tenuifolia
350. „ latifolia
„ „ var. inermis
351. Halopeplis amplexicaulis
352. „ perfoliata
353. Halocnemon strobiliaceum
354. Arthrocnemon glauceum
355. Salicornia fruticosa
356. „ herbacea
357. Suaeda monoica
358. „ vera
Cosmopolitan weed.
Cosmopolitan weed.
Europe.
Tropical Africa.
North and Central Asia.
Tropical Arabia.
Nubia.
Asia.

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358. Suaeda vera var. brevifolia	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
359. „ fruticosa	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
360. „ pruinosa	—	.	.	.	.	—	—	.	.	.	.	.	.	.	—	.	.	
361. „ vermiculata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
362. „ salsa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe and Sibiria.
363. „ splendens	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
364. Schanginia baccata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Arabia.
365. „ hortensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
366. Traganum nudatum	.	.	.	.	.	.	—	.	.	.	—	—	—	.	.	.	.	
367. Seidlitzia Rosmarinus	—	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	Tropical Arabia.
368. Haloxylon articulatum	—	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	
369. „ Schweinfurthii	.	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	—	
370. Salsola inermis	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
371. „ Kali	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	
372. „ Volkensii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
373. „ tetandra	.	.	.	.	—	—	—	.	.	.	—	.	.	.	.	.	.	
374. „ Pachoi	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
375. „ longifolia	.	.	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	
376. „ foetida	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	
377. „ vermiculata var. villosa	—	.	.	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
378. Noaea mucronata	.	.	.	.	.	—	—	.	.	.	—	—	—	—	.	.	.	
379. Anabasis articulata	.	.	.	.	—	—	.	.	.	.	.	—	—	.	.	.	.	
380. „ setifera	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	
381. Cornulaca monacantha	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
382. Agathophora alopecuroides	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
383. Halogeton sativus	—	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	West and Central Asia.
27 Amarantaceae.																		
384. Amarantus hypochondriacus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	North America.
385. „ paniculatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

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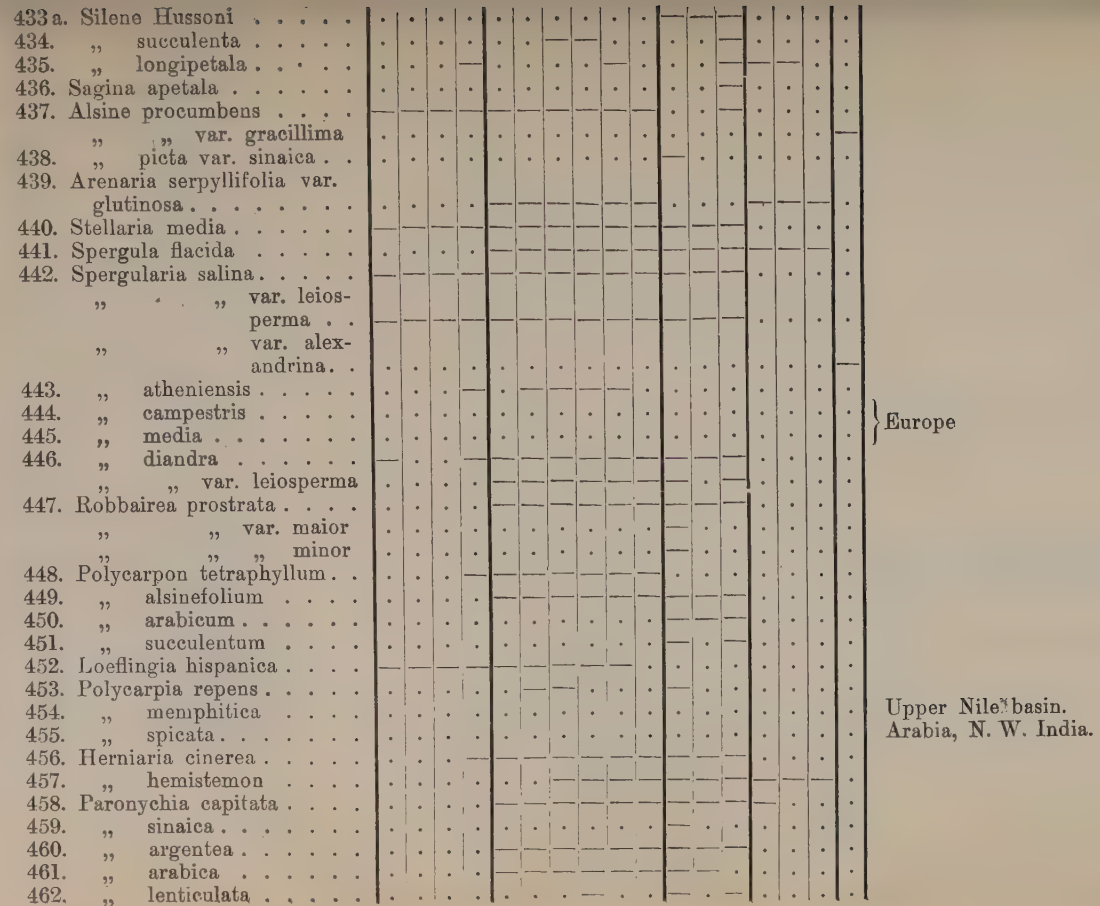
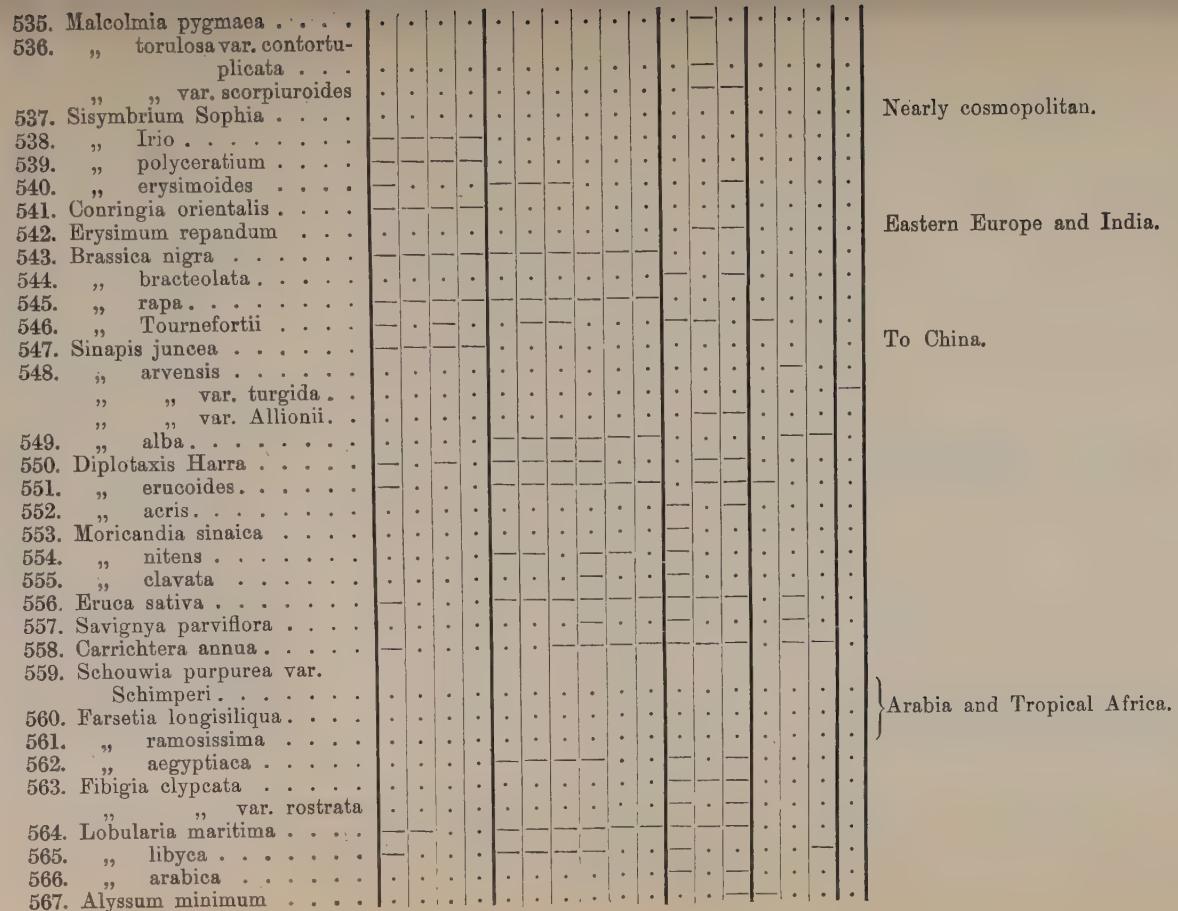
Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
411. Trianthema pentandra	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	N. W. India.
412. Aizoon hispanicum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
413. „ canariense	·	·	—	—	—	—	—	—	—	—	·	·	·	·	·	—	·	
414. Telephium sphaerospermum	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	·	·	
415. Mollugo Glinus	—	·	·	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
31. Portulaccaceae.																		
416. Portulacea oleracea	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Cosmopolitan.
32. Caryophyllaceae.																		
417. Dianthus Cyri	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Anatolia, Assyria, Afghanistan.
418. „ Guessfeldtianus	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
419. Vaccaria segetalis	—	—	—	—	—	—	—	·	·	·	·	·	·	·	·	·	·	
420. Gypsophila Rokejeca	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
421. Silene conoidea	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
422. „ Behen	—	—	—	—	·	·	·	·	—	·	—	—	—	·	·	·	·	
423. „ gallica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
424. „ cerastioides	—	·	—	·	—	—	—	—	·	—	·	·	·	·	·	·	·	
425. „ villosa	·	·	·	·	·	—	—	—	·	·	—	·	—	·	·	·	·	
„ „ var. ismaelitica	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
426. „ abtusifolia	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	·	
427. „ setacea	·	·	·	·	·	·	·	—	·	·	—	·	—	·	·	·	·	
428. „ nocturna	—	·	·	·	—	—	—	—	—	·	·	·	·	·	·	·	·	
429. „ canopica	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	·	
430. „ apetala	·	·	·	·	—	—	—	—	—	—	·	·	·	·	·	—	·	
„ „ var. alexandrina	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	·	
431. „ colorata	·	·	·	·	·	·	·	—	—	—	—	·	·	·	—	—	·	
„ „ var. Oliveriana	·	·	·	·	·	·	·	—	—	—	·	·	·	·	—	—	·	
432. „ rubella	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
433. „ aegyptiaca	·	·	·	·	·	—	—	·	·	·	·	·	—	·	·	·	·	
432 a. „ linearis	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	


433a. Silene Hussoni
434. „ succulenta
435. „ longipetala
436. Sagina apetala
437. Alsine procumbens
„ „ var. gracillima
438. „ picta var. sinaica
439. Arenaria serpyllifolia var. glutinosa
440. Stellaria media
441. Spergula flacida
442. Spergularia salina
„ „ var. leiosperma
„ „ var. alexandrina
443. „ atheniensis
444. „ campestris
445. „ media
446. „ diandra
„ „ var. leiosperma
447. Robbairea prostrata
„ „ var. maior
„ „ „ minor
448. Polycarpon tetraphyllum
449. „ alsinefolium
450. „ arabicum
451. „ succulentum
452. Loeflingia hispanica
453. Polycarpia repens
454. „ memphitica
455. „ spicata
456. Herniaria cinerea
457. „ hemistemon
458. Paronychia capitata
459. „ sinaica
460. „ argentea
461. „ arabica
462. „ lenticulata
Europe
Upper Nile basin.
Arabia, N. W. India.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
463. Gymnocarpus decander . .	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	—	.	
464. Sclerocephalus arabicus . .	—	.	.	.	—	—	—	—	—	—	—	—	—	.	.	—	.	
465. Pteranthus dichotomus . .	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
466. Cometes abyssinica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Western Asia and South Africa.
33. Nymphaeaceae.																		
467. Nymphaea Lotus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa, Hungary.
468. „ coerulea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Central and South Africa.
„ „ var. genuina .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
„ „ „ hypocyanea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
„ „ „ Aschersoniana . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
34. Ceratophyllaceae.																		
469. Ceratophyllum demersum .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Temperate and warmer zones.
35. Ranunculaceae.																		
470. Clematis flammula	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
471. Anemone coronaria	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
472. Ranunculus trichophyllus .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe and Northern America.
„ „ var. Aschersonii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
473. „ asiaticus	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	—	.	
474. „ sceleratus	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.	
475. „ repens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe, Sibiria.
476. „ arvensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
477. „ muricatus	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	—	.	
478. „ trachycarpus	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	—	.	
479. „ Guilelmi Jordani . .	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	
480. Adonis flammeus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Europe.
481. „ microcarpus	—	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	

482. Nigella arvensis	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	Middle Europe and Asia.
„ „ divaricata	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
483. „ deserti	·	·	·	·	·	·	·	·	·	·	—	·	—	·	—	·	·	
484. „ Taubertii	·	·	·	·	·	·	·	—	—	·	·	·	·	·	·	·	·	
485. „ sativa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
486. Delphinium Ajacis	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Nearly cosmopolitan.
487. „ deserti	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	
488. „ nanum	·	·	·	·	·	·	·	—	—	·	·	·	·	·	·	·	·	
489. „ Bovei	·	·	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	
36. Berberidaceae.																		
490. Leontice leontopetalum	·	·	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	
37. Menispermaceae.																		
491. Cocculus pendulus	·	·	·	·	—	—	—	—	—	—	—	—	—	—	—	—	·	
38. Papaveraceae.																		
492. Papaver rhoes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
493. „ dubium	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Europe and subtropical Asia.
494. „ humile	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
495. „ Decaisnei	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	—	·	
496. „ somniferum	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
497. „ hybridum	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
498. „ Argemone	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
499. Roemeria hybrida	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
500. „ dodecandra	·	·	·	·	·	·	·	—	·	·	—	·	—	·	—	—	·	
501. Glaucium corniculatum	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
502. Hypecoum aegyptiacum	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
503. „ deuteroparviflorum	·	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	
504. „ aequilobum	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	·	—	
505. „ pendulum	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
506. Fumaria densiflora	·	·	·	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
507. „ parviflora	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
508. „ officinalis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	Europe, Asia, Abyssinia.
509. „ judaica	·	·	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	
39. Capparidaceae.																		
510. Cleome trinervia	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	} Arabia, Tropical Africa.
511. „ droserifolia	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
512. Cleome chrysantha	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
513. „ arabica	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
514. „ brachycarpa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	Tropical Africa.
515. Gynandropsis pentaphylla	.	.	.	.	—	—	—	—	—	—	.	.	.	—	—	—	.	
516. Dipterygium glaucum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
517. Maerua crassifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nubia and Arabia.
518. Capparis decidua	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
519. „ spinosa	—	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	.	
„ „ var. rupestris	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
520. „ galeata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa, Western India.
40. Cruciferae.																		
521. Matthiola incana	—	.	.	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
522. „ humilis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
„ „ var. caulescens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
„ „ var. hirta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
„ „ var. ecornuta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
523. „ oxyceras	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
524. „ livida	.	.	.	.	—	—	—	—	—	.	—	.	—	.	.	.	.	
525. Cheiranthus Cheirii	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
526. Nasturtium fontanum	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
527. „ niloticum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Nubia.
528. „ palustre	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
529. Arabis albida	—	—	—	—	.	.	.	.	.	.	.	.	.	—	.	—	.	
530. Nasturtiopsis coronopifolia	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
531. Morettia philaeana	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
532. Notoceras bicorne	—	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
533. Anastatica hierochuntica	.	.	.	.	—	—	—	—	—	—	—	.	—	.	.	.	.	
534. Malcolmia aegyptiaca	.	.	.	.	—	—	—	.	.	.	.	.	—	.	.	.	.	
„ „ var. linearis	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
„ „ var. diffusa	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	


535. Malcolmia pygmaea
536. „ torulosa var. contortuplicata
„ „ var. scorpiuroides
537. Sisymbrium Sophia
538. „ Irio
539. „ polyceratium
540. „ erysimoides
541. Conringia orientalis
542. Erysimum repandum
543. Brassica nigra
544. „ bracteolata
545. „ rapa
546. „ Tournefortii
547. Sinapis juncea
548. „ arvensis
„ „ var. turgida
„ „ var. Allionii
549. „ alba
550. Diplotaxis Harra
551. „ erucoides
552. „ acris
553. Moricandia sinaica
554. „ nitens
555. „ clavata
556. Eruca sativa
557. Savignya parviflora
558. Carrichtera annua
559. Schouwia purpurea var. Schimperi
560. Farsetia longisiliqua
561. „ ramosissima
562. „ aegyptiaca
563. Fibigia clypeata
„ „ var. rostrata
564. Lobularia maritima
565. „ libyca
566. „ arabica
567. Alyssum minimum
Nearly cosmopolitan.
Eastern Europe and India.
To China.
Arabia and Tropical Africa.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
568. Alyssum homalocarpum	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
569. Leptaleum filifolium	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
570. Camelina hispida	·	·	·	·													·	
571. Capsella bursa-pastoris																	·	
572. ,, procumbens																	·	
573. Lepidium sativum	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
574. ,, Aucheri	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
575. ,, Draba	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
576. ,, latifolium	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
577. Biscutella didyma var. Apula	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
578. Coronopus squamatus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
579. ,, niloticus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
580. Isatis microcarpa	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
,, ,, var. blepharocarpa	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
581. Neslea paniculata	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
582. Calepina Corvini	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
583. Schimpera arabica	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
,, ,, var. lasiocarpa	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
584. Zilla spinosa	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
585. Rapistrum rugosum	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
,, ,, var. orientale	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
586. Didesmus aegyptius	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
587. Cakile maritima	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
,, ,, var. aegyptiaca	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
588. Enarthrocarpus lyratus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
589. ,, pterocarpus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
590. ,, strangulatus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
,, ,, var. amalecitanus	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
591. Reboudia microcarpa	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
592. Erucaria aleppica var. latifolia	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	
593. ,, crassifolia	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	

Tropical Africa.

Dongola.

594. „ uncata	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	
595. Raphanus sativus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	Cultivated everywhere.
596. „ Raphanistrum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
41. Resedaceae.																		
597. Caylusea canescens	·	·	·	·	—	—	—	—	—	—	—	—	—	—	·	·	·	
598. Reseda alba	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	—	·	
599. „ decursiva	·	·	·	·	·	·	·	·	·	—	—	—	—	—	·	·	·	
600. „ arabica	·	·	·	·	—	—	—	—	—	—	—	—	·	·	·	·	—	
601. „ odorata	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	·	·	
602. „ lutea	—	·	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
603. „ Boissieri	·	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	
604. „ muricata	·	·	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	
605. „ pruinosa	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	India and Arabia.
606. „ luteola	—	·	·	—	—	—	—	·	·	·	—	—	—	·	·	·	·	
607. Oligomeris subulata	·	·	·	·	—	—	—	—	·	·	·	·	·	·	·	·	—	
608. Ochradenus baccatus	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
42. Moringaceae.																		
609. Moringa pterygosperma	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	India to Western Himalaya.
610. „ aptera	·	·	·	·	·	·	·	·	·	·	—	·	—	·	·	·	·	Abyssinia.
43. Crassulaceae.																		
611. Tillaea trichopoda	·	·	·	·	·	—	—	—	·	·	·	·	—	·	·	—	·	
612. Umbilicus intermedius	·	·	·	·	·	·	·	·	·	·	—	—	—	·	—	—	·	
613. „ horizontalis	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
614. Bryophyllum pinnatum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Common in the Tropics.
615. Calenchoë deficiens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Arabia.
44. Saxifragaceae.																		
616. Vahlia viscosa	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	India and Tropical Africa.
45. Rosaceae.																		
617. Rubus sanctus	·	·	·	·	·	·	·	·	·	·	—	—	—	—	—	·	·	
618. Potentilla supina	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Europe and Asia.
619. Poterium verrucosum	—	—	—	—	—	—	—	·	·	·	—	·	·	·	·	·	·	
620. Rosa bracteata	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	India.
621. Neurada procumbens	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
46. Leguminosae.																		
622. Prosopis Stephaniana	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	.	.	
623. Mimosa asperata	.	.	.	.	.	.	.	.	.	.	—	.	.	—	—	.	.	
624. Acacia albida	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
625. „ laeta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
626. „ arabica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ var. nilotica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
627. „ Seyal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
628. „ Ehrenbergiana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
629. „ spirocarpa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
630. „ tortilis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
631. Caesalpinia sepiaria	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Asia and America.
632. Cassia occidentalis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics of the Old and New World.
633. „ Sophera	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
634. „ bicapsularis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical America.
635. „ obovata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	N. W. India.
636. „ acutifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
637. Lotononis dichotoma	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	.	.	
638. Argyrolobium uniflorum	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
639. Crotalaria thebaica	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	Desert region of the Nile.
640. „ aegyptiaca	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
641. Retama Raetam	.	.	.	.	—	—	—	—	.	.	—	.	.	.	.	.	.	
„ „ var. Duriaei	.	.	.	.	—	—	—	—	.	.	—	.	.	.	.	.	—	
642. Lupinus digitatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
643. „ angustifolius	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
644. „ Termis	—	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
645. Ononis Natrix var. stenophylla	—	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
645a. „ vaginalis	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	
646. „ reclinata var. minor	—	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
647. „ pubescens	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	

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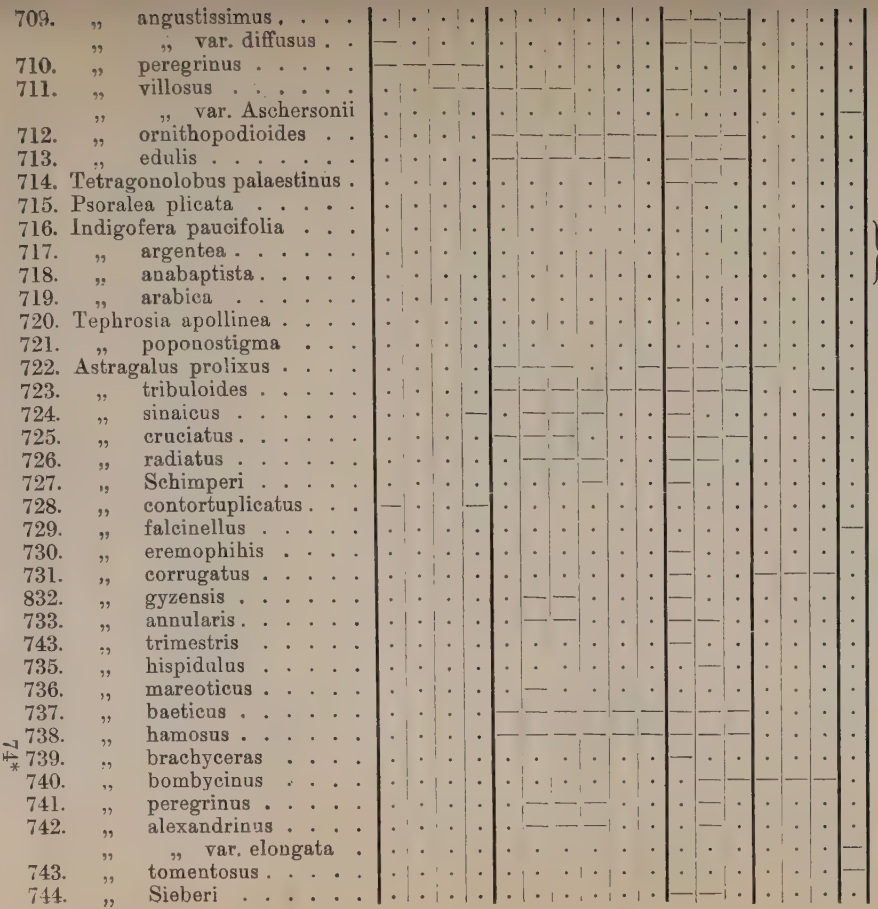
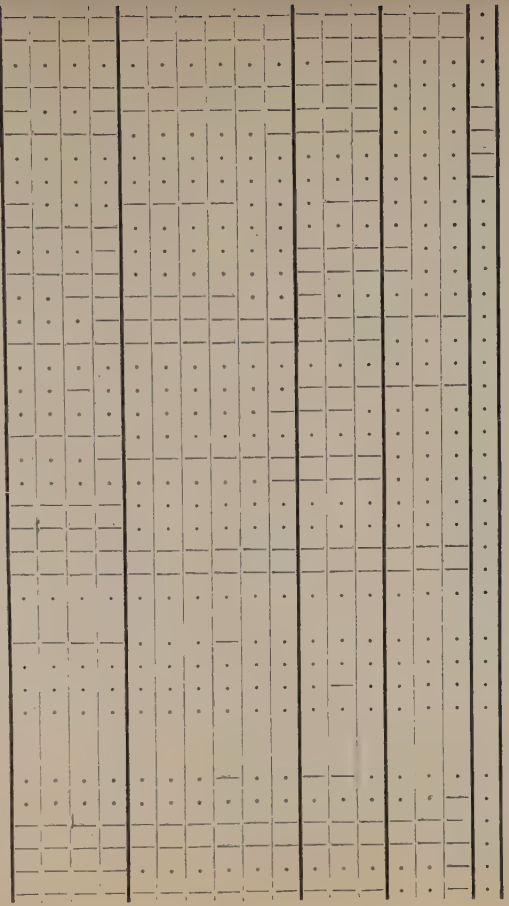
Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
680. Melilotus messanensis	·	·	·	·													·	
681. ,, elegans	·	·	·	·													·	
682. ,, indicus		·	·	·													·	
683. Trifolium lappaceum	·	·	·	·													·	
684. ,, stellatum	·	·	·														·	
685. ,, angustifolium																	·	
686. ,, purpureum	·	·	·	·													·	
687. ,, alexandrinum	·	·	·	·													·	
688. ,, formosum																	·	
689. ,, dichroanthum																	·	
690. ,, fragiferum	·	·	·	·													·	
691. ,, resupinatum	·	·	·	·													·	
692. ,, tomentosum	·	·	·	·													·	
693. ,, xerocephalum	·	·	·	·													·	
694. ,, nigrescens	·	·	·	·													·	
695. ,, patens		·	·	·													·	
696. ,, stenophyllum	·	·	·	·													·	
697. ,, procumbens	·	·	·	·													·	
698. Hymenocarpus nummularis	·	·	·	·													·	
699. Bonaveria Securidaca	·	·	·	·													·	
700. Lotus argenteus	·	·	·	·													·	
701. ,, ereticus	·	·	·	·													·	
702. ,, cytisoides	·	·	·	·													·	
703. ,, corniculatus	·	·	·	·													·	
,, var. tenuifolius																	·	
704. ,, lamprocarpus	·	·	·	·													·	
,, var. glaberrimus	·	·	·	·													·	
705. ,, lanuginosus	·	·	·	·													·	
706. ,, arabicus	·	·	·	·													·	
707. ,, glinoides	·	·	·	·													·	
708. ,, Schimperi	·	·	·	·													·	Arabia.


709. „ angustissimus
„ „ var. diffusus
710. „ peregrinus
711. „ villosus
„ „ var. Aschersonii
712. „ ornithopodioides
713. „ edulis
714. Tetragonolobus palaestinus
715. Psoralea plicata
716. Indigofera paucifolia
717. „ argentea
718. „ anabaptista
719. „ arabica
720. Tephrosia apollinea
721. „ poponostigma
722. Astragalus prolixus
723. „ tribuloides
724. „ sinaicus
725. „ cruciatus
726. „ radiatus
727. „ Schimperi
728. „ contortuplicatus
729. „ falcinellus
730. „ eremophihis
731. „ corrugatus
832. „ gyzensis
733. „ annularis
743. „ trimestris
735. „ hispidulus
736. „ mareoticus
737. „ baeticus
738. „ hamosus
*739. „ brachyceras
740. „ bombycinus
741. „ peregrinus
742. „ alexandrinus
„ „ var. elongata
743. „ tomentosus
744. „ Sieberi
Tropical Africa, Cape.
Tropical Africa to East-India.
Arabia.
Tropical Africa to East-India.
Arabia.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
745. Astragalus trigomus	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	·	
746. „ leucacanthus	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	
747. „ Forskåli	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	·	
748. „ cahiricus	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	·	
749. „ camelorum	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	·	
750. Sesbania cinerascens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropical Africa.
751. „ aegyptiaca	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropical Asia.
752. „ pubescens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Nubia.
753. Glycirrhiza glabra	·	·	·	·	·	·	·	·	·	·	·	·	·	—	·	—	·	
754. Scorpiurus sulcata	—	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
755. „ muricata	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
„ „ var. laevigata	—	·	·	—	·	·	—	—	·	—	—	—	·	·	·	·	·	
756. Hippocrepis unisiliquosa	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
757. „ bisiliqua	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	
758. „ multisiliquosa	—	·	·	·	—	—	—	—	—	—	—	—	—	—	·	·	·	
759. „ cyclocarpa	·	·	·	·	·	·	·	·	·	·	—	—	·	·	·	·	·	
760. „ constricta	—	·	—	—	·	·	·	·	·	·	—	—	—	·	·	·	·	
761. „ bicontorta	·	·	·	·	·	—	—	·	·	·	—	—	—	·	·	·	·	
762. Coronilla scorpioides	—	—	—	—	·	·	·	·	·	·	—	·	·	·	·	·	·	
763. Hedysarum spinosissimum	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
764. „ coronarium	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
765. Onobrychis Crista galli	—	·	·	—	·	·	·	·	·	·	—	—	—	·	·	·	·	
766. „ Gaertneriana	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
767. „ ptolemaica	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
768. Taverniera aegyptiaca	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Nubia.
769. Ebenus Armitagei	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
770. Alhagi Maurorum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Cultivated in the Tropics.
771. Arachis hypogaea	·	·	·	·	—	—	—	—	—	—	—	—	—	·	·	·	·	
772. Cicer arietinum	—	·	·	—	·	·	·	—	—	—	—	—	—	·	·	·	·	
773. Vicia lutea var. hirta	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
„ „ var purpurascens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Middle Europe.

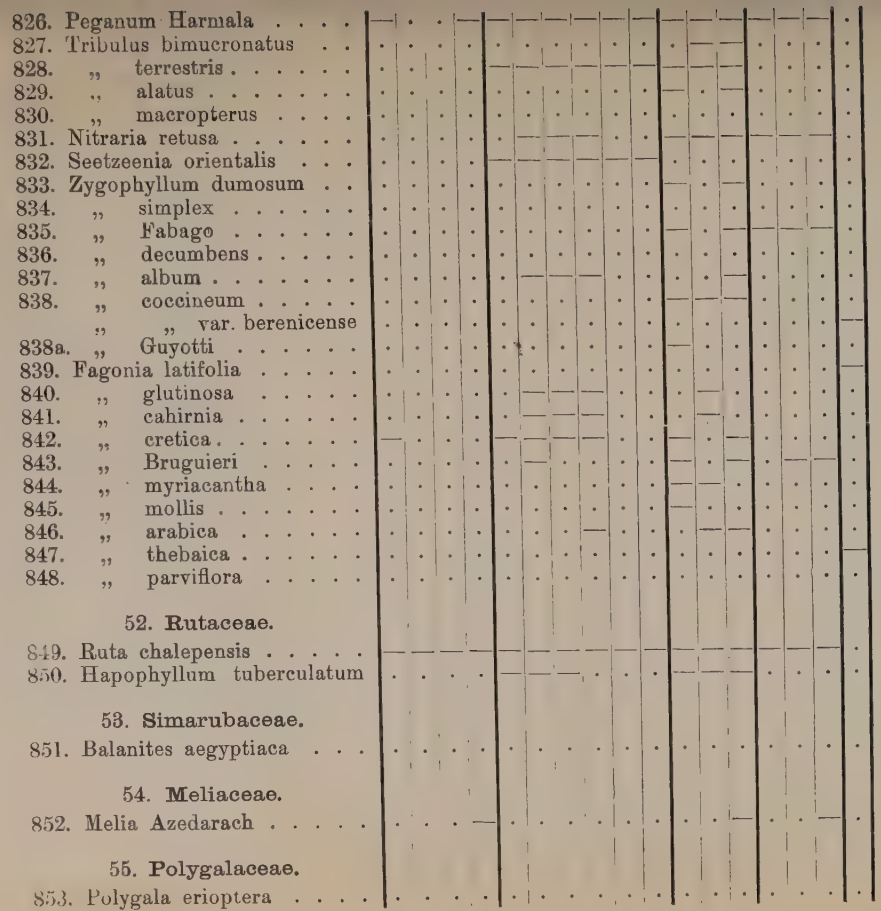


774.	„ sativa	
	„ „ var. angustifolia	
	„ „ var. cordata	
	„ „ var. amphicarpa	
775.	„ peregrina	
776.	„ narbonensis	
	„ „ var. aegyptiaca	
	„ „ var. affinis	
777.	„ calcarata	
778.	„ varia	
779.	„ salaminia	
780.	„ Ervilia	
781.	„ gracilis	
782.	Lens esculenta	
783.	Lathyrus Aphaca	
784.	„ Gorgonii	
785.	„ annuus	
786.	„ hierosolymitanus	
787.	„ sphaericus	
788.	„ Cicer	
789.	„ marmoratus	
790.	„ sativus	
791.	„ hirsutus	
792.	Pisum sativum	
	„ „ var. elatius	
793.	Vigna nilotica	Tropical Africa
794.	„ sinensis var. sesquipedalis	Tropical Asia, Asia and S. Europe. Tropics
795.	Dolichos Lablab	
	„ „ var. hortensis	
796.	Rhynchosia Memnonia	Tropical Africa.

47. Geraniaceae.

797.	Monsonia nivea	
798.	„ heliotropoides	
799.	Geranicum molle	
800.	„ dissectum	
801.	Erodium cicutarium	
802.	„ moschatum	

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
803. Erodium ciconium	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
804. „ chium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
805. „ aegyptiacum	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	
806. „ triangulare	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
807. „ gruinum	—	.	.	—	.	.	.	—	.	.	.	.	.	—	.	—	.	
808. „ malacoides	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
809. „ hirtum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
810. „ glaucophyllum	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
811. „ arborescens	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.	
812. „ bryoniaefolium	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	—	.	
813. Pelargonium zonale	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cape.
48. Oxalidaceae.																		
814. Oxalis cernua	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
815. „ corniculata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cape.
816. Biophytum sensitivum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Asia.
49. Tropaeolaceae.																		
817. Tropaeolum majus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	South America.
50. Linaceae.																		
818. Linum maritimum	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
819. „ strictum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
820. „ pubescens	.	.	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
821. „ grandiflorum	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	
822. „ decumbens	.	.	—	.	—	—	—	.	.	.	.	.	.	.	.	.	.	
823. „ usitatissimum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cultivated in Europe and Asia.
824. „ humile	.	.	.	.	.	.	.	.	.	.	.	.	—	—	.	—	.	
51. Zygophyllaceae.																		
825. Tetradiclis salsa	.	.	.	.	.	.	.	—	.	.	.	.	—	.	—	.	.	



826. Peganum Harmala
827. Tribulus bimucronatus
828. „ terrestris
829. „ alatus
830. „ macropterus — Tropical Arabica.
831. Nitraria retusa
832. Seetzeenia orientalis
833. Zygophyllum dumosum
834. „ simplex — Tropical and South Africa.
835. „ Fabago
836. „ decumbens — Soturba.
837. „ album
838. „ coccineum
„ „ var. berenicense
838a. „ Guyotti
839. Fagonia latifolia
840. „ glutinosa
841. „ cahirnia
842. „ cretica
843. „ Bruguieri
844. „ myriacantha
845. „ mollis
846. „ arabica
847. „ thebaica
848. „ parviflora — Nubia?

52. **Rutaceae.**

849. Ruta chalepensis
850. Hapophyllum tuberculatum

53. **Simarubaceae.**

851. Balanites aegyptiaca — Tropical Africa.

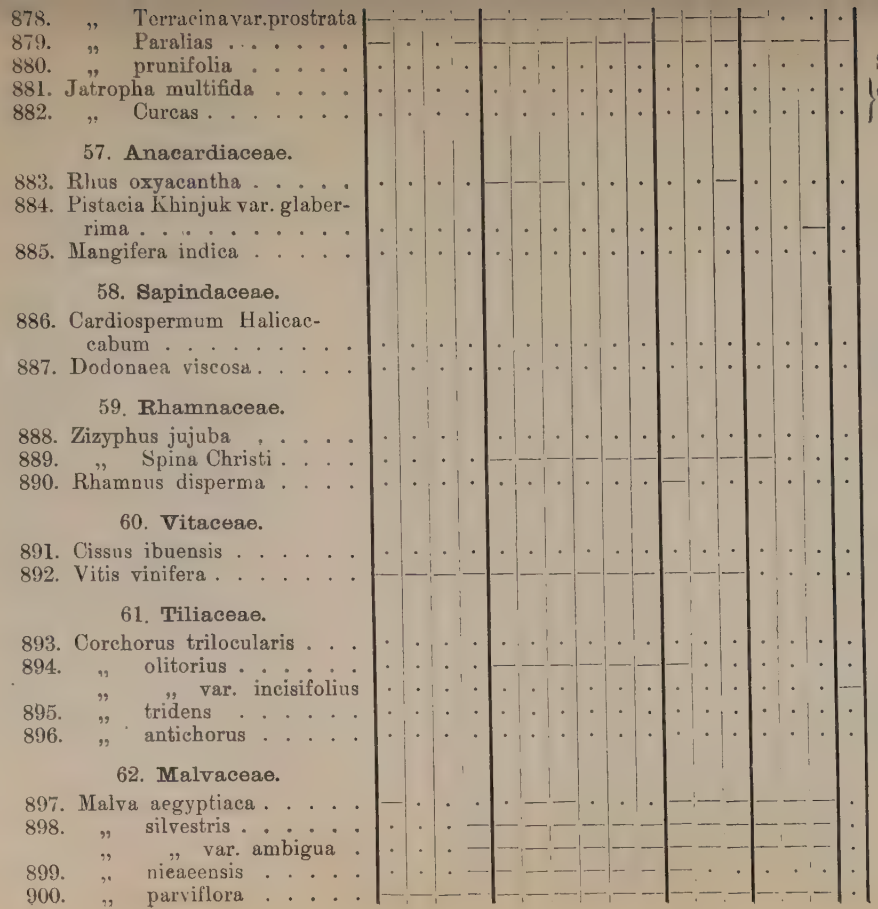
54. **Meliaceae.**

852. Melia Azedarach

55. **Polygalaceae.**

853. Polygala erioptera — Tropical Africa to India.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
56. **Euphorbiaceae.**																		
854. Croton glandulosus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	America.
855. Crozophora plicata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa to India.
„ „ var. prostrata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
856. „ tinctoria	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
„ „ var. subplicata	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
„ „ var. hierosolymitana	—	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
857. „ obliqua	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
858. Mercurialis annua	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
859. Ricinus communis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Naturalized in most hot countries.
860. Phyllanthus rotundifolius	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa to India.
861. Andrachne telephioides	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
862. „ aspera	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	Nubia and Abyssinia.
863. Euphorbia Peplis	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
864. „ granulata	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
865. „ indica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Arabia.
866. „ chamaesyce	.	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	.	
867. „ aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa to India.
868. „ mauritanica	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
869. „ cornuta	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
870. „ arguta	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
871. „ helioscopia	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
872. „ parvula	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
873. „ dracunculoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Arabia.
874. „ Peplus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
„ var. maritima	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
875. „ peploides	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
876 „ chamaepeplus var. sinaica	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
877. „ punctata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	



878. „ Terracina var. prostrata
879. „ Paralias
880. „ prunifolia — South America.
881. Jatropha multifida
882. „ Curcas — Tropics of New and old World.

57. Anacardiaceae.

883. Rhus oxyacantha
884. Pistacia Khinjuk var. glaberrima
885. Mangifera indica — Tropics.

58. Sapindaceae.

886. Cardiospermum Halicacabum — Tropics
887. Dodonaea viscosa — India.

59. Rhamnaceae.

888. Zizyphus jujuba — India.
889. „ Spina Christi
890. Rhamnus disperma

60. Vitaceae.

891. Cissus ibuensis — Tropical Africa.
892. Vitis vinifera

61. Tiliaceae.

893. Corchorus trilocularis — Tropics.
894. „ olitorius
„ „ var. incisifolius
895. „ tridens — Tropics.
896. „ antichorus — Tropical Africa.

62. Malvaceae.

897. Malva aegyptiaca
898. „ silvestris
„ „ var. ambigua
899. „ nicaeensis
900. „ parviflora

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
901. Althaea Ludwigii	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
902. „ acaulis	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
903. „ striata	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
904. „ ficifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
905. Lavatera cretica	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
906. Sida spinosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Asia.
907. Abutilon angulatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
908. „ graveolens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
909. „ bidentatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
910. „ denticulatum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
911. „ Avicennae	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
912. „ muticum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa etc.
913. Hibiscus Trionum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	From Africa to India.
914. „ Sabdariffa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	India.
915. „ cannabinus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
916. Gossypium barbadense	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa to India etc.
917. „ anomalum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
918. „ arboreum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
919. „ herbaceum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa to India.
63. Sterculiaceae.																		
920. Sterculia tomentosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
64. Elatinaceae.																		
921. Elatine campylosperma	—	.	.	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
922. Bergia aquatica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
923. „ ammannioides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics.
924. „ suffruticosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
65. Frankeniaceae.																		
925. Frankenia pulverulenta	—	.	.	—	—	—	—	—	—	—	.	.	.	.	.	.	.	India.

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Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
71. Cactaceae.																		
951. Opuntia Ficus indica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Middle and North America.
952. „ inermis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Middle and North America.
72. Thymelaeacea.																		
953. Thymelaea hirsuta	—	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
73. Eleagnaceae.																		
954. Elaeagnus hortensis var. orientalis	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
74. Lythraceae.																		
955. Lythrum tribracteatum	—	.	.	—	—	—	.	.	.	.	—	—	—	.	.	.	.	
956. Lythrum hyssopifolium	—	.	.	—	.	.	.	—	—	—	—	—	—	.	.	.	.	
957. „ thymifolium	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
958. „ flexuosum	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
959. Ammannia auriculata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics.
960. „ senegalensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
961. „ baccifera	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Asia.
„ var. aegyptiaca	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
962. „ attenuata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
963. Lawsonia inermis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics.
75. Punicaceae.																		
964. Punica Granatum	—	.	.	—	—	—	.	.	.	.	—	—	—	.	.	.	.	
76. Combretaceae.																		
965. Terminalia glabra	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	India.
77. Myrtaceae.																		
966. Eucalyptus robustus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	India.

967. Epilobium hirsutum . . . .
968. Jussiaea repens . . . . .
969. „ linifolia . . . . . Tropical Africa and America.

79. **Halorrhagidaceae.**

970. Myriophyllum spicatum . .

80. **Cynomoriaceae.**

971. Cynomorium coccineum . .

81. **Araliaceae.**

972. Hedera Helix . . . . . .

82. **Umbellifera.**

973. Eryngium campestre . . .
974. „ creticum . . . . . .
975. Sanicula europaea . . . .
976. Coriandrum sativum . . .
977. Bupleurum subovatum . . .
„ „ var. heterophyllum
978. „ modiflorum . . . .
979. „ Muschleri . . . . .
980. „ semicompositum . .
981. Apium graveolens . . . .
982. Heliosciadium nodiflorum .
983. „ crassipes . . . . . .
984. Petroselinum sativum . . .
985. Pithyranthus tortuosus . .
986. „ triradiatus . . . . .
987. Carum Carvi . . . . . .
988. Ammi majus . . . . . .
989. „ Visnaga . . . . . .
990. „ copticum . . . . .
991. Berula angustifolia . . . .
992. Pimpinella Schweinfurthii .
993. „ Anisum . . . . . .

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994. Scandix Pecten Veneris	.	.	.	—	.	.	.	.	.	.	.	.	—	.	.	—	.	
995. Chaerophyllum cerefolium	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	
996. Anthriscus lamprocarpa	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	—	.	
997. Foeniculum capillaceum	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	
998. „ piperitum	—	—	—	—	.	.	.	.	.	.	.	.	—	.	.	—	.	
999. Crithmum maritimum	.	.	.	—	.	.	.	—	—	—	.	.	—	.	.	—	.	
1000. Ducrosia Ismaelis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
1001. Ferula sinaica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
1002. Anethum graveolens	.	.	.	—	.	—	—	—	—	—	.	.	—	.	.	—	.	
1003. Tordylium aegyptiacum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.	
1004. Zozimia absinthiifolia	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	
1005. Malabeila suaveolens	.	.	.	.	.	.	.	.	—	—	.	.	—	.	.	—	.	
1006. Orlaya maritima	.	.	.	—	.	—	—	—	—	—	—	.	—	.	.	—	.	
1007. Ammodaucus leucotrichus	.	.	.	.	—	—	—	.	.	.	—	.	—	.	.	—	.	
1007a. Daucus Broteri	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	
1008. „ litoralis var. Forskålei	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	—	.	
1009. „ guttatus	.	.	.	—	.	—	—	.	—	—	—	.	—	.	.	—	.	
1010. „ aureus	.	.	.	—	.	—	—	.	—	—	—	.	—	.	.	—	.	
1011. „ Carota	—	—	—	—	.	—	—	.	—	—	—	.	—	.	.	—	.	
„ „ var. Boissieri	.	.	.	.	—	—	—	.	—	—	—	.	—	.	.	—	.	
1012. Torilis infesta	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	—	.	
1013. „ neglecta	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	—	.	
1014. „ nodosa	.	.	.	.	.	.	.	.	.	.	—	.	—	—	—	—	.	
1015. Caucalis tenella	.	.	.	—	.	.	.	.	—	.	—	.	—	—	—	—	.	
1016. „ leptophylla	.	.	.	—	.	.	.	.	—	.	—	.	—	—	—	—	.	
1017. Cuminum Cyminum var. hirtum	.	.	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	
83. Ericaceae.																		
1018. Arbutus Unedo	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	—	.	

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1045. Periploca laevigata	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
1046. „ aphylla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1047. Glossonema Boveanum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa and Arabia.
1048. Daemia tomentosa	.	.	.	.	—	—	—	—	—	—	.	.	.	—	—	—	.	
1049. Cynanchum acutum	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1050. Solenostemma Argel	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1051. Oxystelma esculentum var. Alpini	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.	
1052. Calotropis procera	.	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	
1053. Asclepias fruticosa	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1054. „ sinaica	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1055. „ curassavica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical America.
1056. Leptadenia heterophylla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1057. „ pyrotechnica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1058. Caralluma europaea	—	.	—	.	.	—	—	—	—	—	.	.	.	.	.	.	.	
91. Convoloulaceae.																		
1059. Cressa cretica	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
1060. Seddera latifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1061. Calystegia hederacea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1062. Convoloulus Hystrix	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1063. „ lanatus	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1064. „ Dorycnium	.	.	.	—	.	.	.	.	.	.	—	—	—	—	—	—	.	
1065. „ lineatus	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1066. „ oleaefolius	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1067. „ Schimperi	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1068. „ secundus	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1069. „ pilosellaefolius	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1070. „ microphyllus	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1071. „ althaeoides	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1072. „ arvensis	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	

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1106. Lappula sinaica	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1107. Echiochilon fruticosum	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
1108. Symphytum orientale	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1109. Borrago officinalis	.	.	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1110. Anchusa undulata	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
1111. „ strigosa	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	—	.	
1112. „ aggregata	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	—	.	
1113. „ hispida	.	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	.	
1114. „ aegyptiaca	.	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	.	
1115. „ Milleri	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	—	.	
1116. Nonnea Vivianii	.	.	.	.	.	.	.	—	—	—	.	.	.	.	.	.	.	
1117. Alkanna tinctoria	.	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1118. Lithospermum arvense	—	.	.	—	—	—	—	—	.	.	.	.	—	.	.	—	.	
1119. „ incrassatum	—	.	.	—	—	—	—	—	.	.	.	.	—	.	.	—	.	
1120. „ tenuiflorum	.	.	.	—	.	—	—	—	.	.	—	—	—	.	.	—	.	
1121. „ callosum	.	.	.	.	—	—	—	—	.	.	—	—	—	.	.	—	.	
1122. Arnebia hispidissima	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1123. „ decumbens	.	.	.	.	.	—	—	—	.	.	—	—	—	.	.	—	.	
1124. „ linearifolia	.	.	.	.	.	.	.	—	.	.	—	—	—	.	.	—	.	
1125. „ tinctoria	.	.	.	.	.	.	.	—	.	.	—	—	—	.	.	—	.	
1126. Echium italicum	—	—	—	—	.	.	.	.	.	.	—	—	—	.	.	.	.	
1127. „ sericeum	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
1128. „ longifolium	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1129. „ Rauwolffii	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1130. „ setosum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
„ „ var. parviflorum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1131. Onosma frutescens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1132. Podonosma galalense	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
95. Verbenaceae.																		
1133. Lantana Camara	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics.

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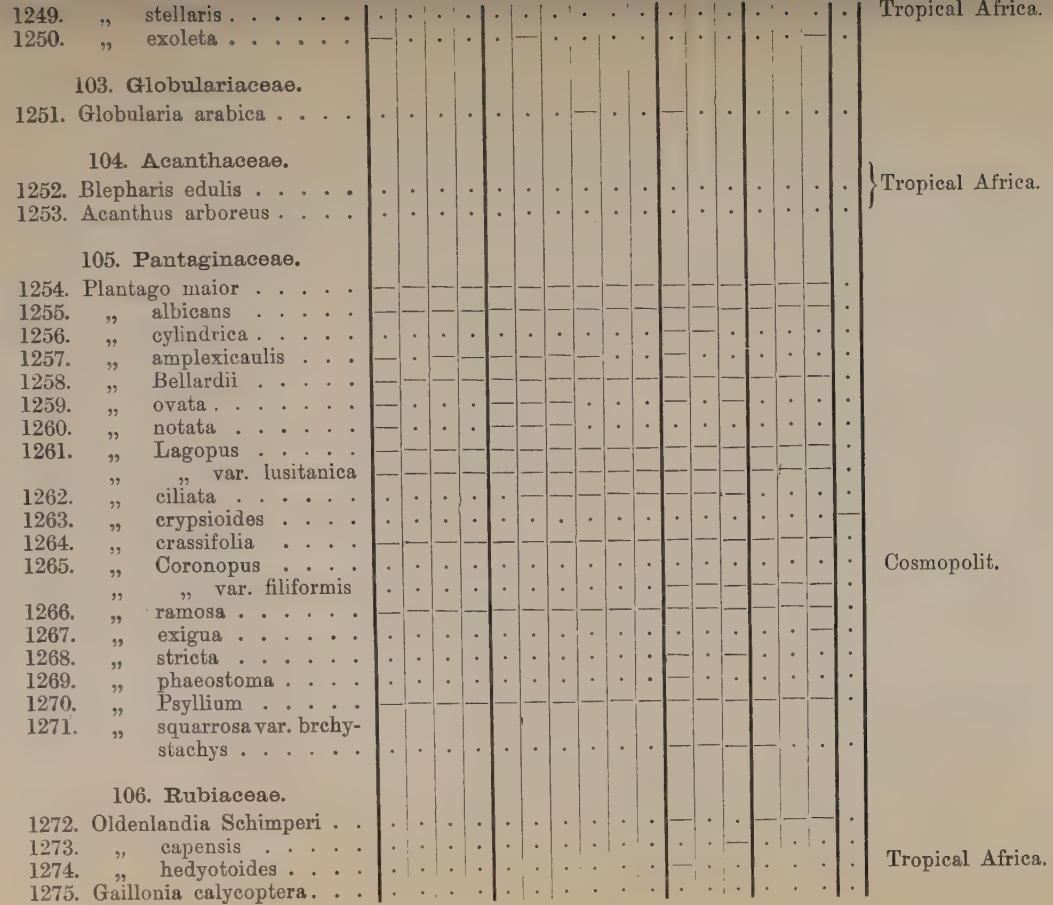
Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1168. Ballote undulata	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1169. Leucas inflata	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1170. Phlomis floccosa	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1171. Leonotis Leonurus	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropical and South Africa.
1172. Otostegia microphylla	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1173. Eremostachys laciniata	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1174. Prasium maius	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
1175. Teucrium leucocladum	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1176. „ Polium	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
1177. „ pilosum	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1178. Ajuga Iva	—	·	·	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
97. Solanaceae.																		
1179. Nicandra physaloides	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropical and South Africa.
1180. Solanum nigrum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Cosmopolit.
„ „ var. induratum	·	·	·	·	·	·	·	·	·	·	·	—	·	·	·	—	·	
„ „ var. humile	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Cosmopolit.
1181. „ Lycopersicum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	American plant.
1182. „ macranthum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1183. Solanum insanum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropical Africa.
1184. „ Melongena	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1185. Physalis peruviana	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropics.
1186. Withania somnifera	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
1187. Capsicum frutescens	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropics.
1188. Lycium Schweinfurthii	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
1189. „ Aschersonii	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	—	
1190. „ europaeum	—	—	—	—	—	—	—	—	—	—	—	—	—	·	·	·	·	
1191. „ arabicum	·	·	·	·	·	·	·	—	·	·	—	·	·	·	·	—	·	
1192. „ vulgare	—	—	—	—	·	·	·	·	·	·	—	—	—	·	·	·	·	
1193. Datura Metel	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Tropics.
1194. „ fastuosa	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	

1195.	„ suaveolens	Tropical South America.
1196.	„ Stramonium	Cosmopolit.
1197.	Hyoscyamus muticus	
1198.	„ albus	
	„ „ var. desertorum	
1199.	„ pusillus	
1200.	„ Boveanus	
1201.	Nicotiana Tabacum	Native of America.
1202.	„ plumbaginifolia var. chlorantha	Mexico.
1203.	„ glauca	South America.
1204.	„ rustica	

98. **Serophulariaceae.**

1205.	Anticharis glandulosa	Tropical Africa.
1206.	Verbascum Letourneuxii	
1207.	„ sinaiticum	
1208.	„ sinuatum	
1209.	Linaria spuria	
1210.	„ Elatine	
	„ „ var. villosa	
1211.	„ aegyptiaca	
1212.	„ Kneuckeri	
1213.	„ floribunda	
1214.	„ bipartita	
1215.	„ micrantha	
1216.	„ Haelava	
1217.	„ ascalonica	
1218.	„ albifrons	
1219.	Antirrhinum Orontium	
1220.	Scrophularia deserti	
1221.	„ xantroglossa	
1222.	„ hypericifolia	
1223.	Sutera glandulosa	Tropical Africa.
1224.	Lindenbergia sinaica	
1225.	Herpestis Monniera	Tropical South America.
1226.	Peplidium maritimum	Tropical Asia and Africa.
1227.	Limosella aquatica	Cosmopolitan.
1228.	Veronica anagallis	Temperate regions.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1228. Veronica anagallis var. nilotica	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	—	
1229. „ anagalloides	.	.	.	—	.	.	.	.	.	.	—	.	—	.	.	.	.	
1230. „ Beccabunga forma minima	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Abyssinia.
1231. „ Buxbaumii	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1232. Striga orobanchoides	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1233. „ hermonthica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1234. „ lutea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1235. „ euphrasioides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1236. Eufragia viscosa	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
99. Bignoniaceae.																		
1237. Tecomaria capensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical and South America.
100. Pedaliaceae.																		
1238. Sesamum indicum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropics.
101. Orobanchaceae.																		
1239. Cistanche lutea	—	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
1240. Orobanche ramosa	—	.	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1241. „ Schweinfurthii	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	.	.	
1242. „ Mutelii	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1243. „ aegyptiaca	—	.	.	.	—	—	—	—	—	—	—	—	—	.	—	—	.	
1244. „ cernua	—	.	.	.	.	—	—	—	.	.	—	—	.	.	.	.	.	
1245. „ crenata	—	.	.	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1246. „ versicolor	.	—	.	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1247. „ minor	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
102. Lentibulariaceae.																		
1248. Utricularia inflexa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.



1249.	„ stellaris	Tropical Africa.
1250.	„ exoleta	
	103. Globulariaceae.	
1251.	Globularia arabica	
	104. Acanthaceae.	
1252.	Blepharis edulis	Tropical Africa.
1253.	Acanthus arboreus	
	105. Pantaginaceae.	
1254.	Plantago maior	
1255.	„ albicans	
1256.	„ cylindrica	
1257.	„ amplexicaulis	
1258.	„ Bellardii	
1259.	„ ovata	
1260.	„ notata	
1261.	„ Lagopus	
	„ „ var. lusitanica	
1262.	„ ciliata	
1263.	„ crypsioides	
1264.	„ crassifolia	
1265.	„ Coronopus	Cosmopolit.
	„ „ var. filiformis	
1266.	„ ramosa	
1267.	„ exigua	
1268.	„ stricta	
1269.	„ phaeostoma	
1270.	„ Psyllium	
1271.	„ squarrosa var. brchystachys	
	106. Rubiaceae.	
1272.	Oldenlandia Schimperi	
1273.	„ capensis	Tropical Africa.
1274.	„ hedyotoides	
1275.	Gaillonia calycoptera	

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1276. Rubia tinctorum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1277. Callipeltis aperta	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1278. Vaillantia hispida	—	·	—	—	—	—	—	—	—	—	·	—	—	·	·	·	·	
1279. Galium tricorne	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1280. „ spurium	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1281. „ nigricans var. brachychaetum	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1282. „ murale	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
„ „ var. alexandrinum	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1283. „ lanatum	·	·	·	·	·	·	—	—	·	·	·	·	·	·	·	·	·	
1284. Crucianella herbacea	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1285. „ membranacea	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1286. „ maritima	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
107. Caprifoliaceae.																		
1287. Sambucus nigra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1288. Viburnum Opulus	—	—	—	—	·	·	·	·	·	·	·	·	·	—	·	—	·	
1289. Lonicera caprifolium	—	—	—	—	·	·	·	·	·	·	·	·	·	—	·	—	·	
108. Valerianaceae.																		
1290. Centranthus macrosiphon	—	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1291. Valerianella Szovitsiana	·	·	·	·	·	·	·	·	·	·	—	—	—	·	·	·	·	
1292. „ Petrovichii	—	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
109. Dipsacaceae.																		
1293. Cephalaria syriaca	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1294. Pterocephalus papposus	·	·	·	—	·	·	·	·	·	·	—	—	—	·	·	·	·	
1295. Scabiosa arenaria	·	·	·	·	·	—	—	·	·	·	—	·	·	·	·	·	·	
1296. „ eremophila	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	
1297. „ Aucheri	·	·	·	·	·	·	·	·	·	·	—	·	·	·	·	·	·	

110. Cucurbitaceae.

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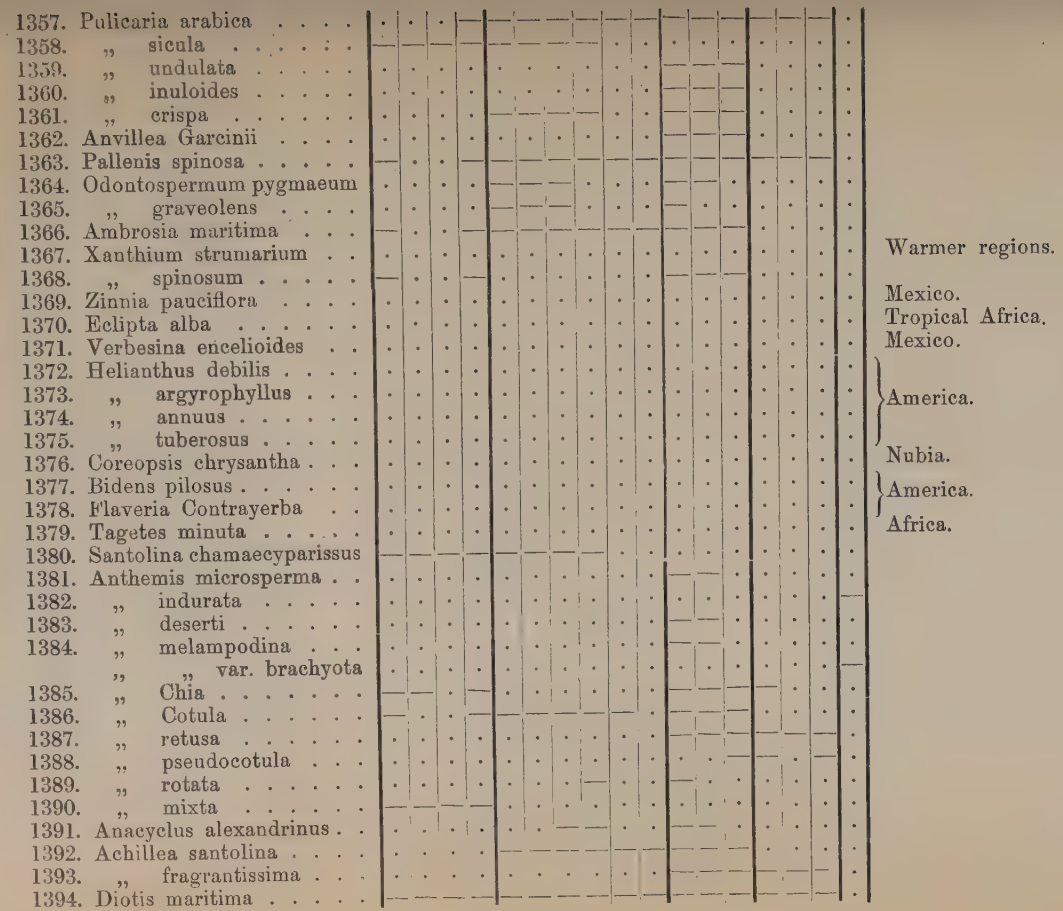
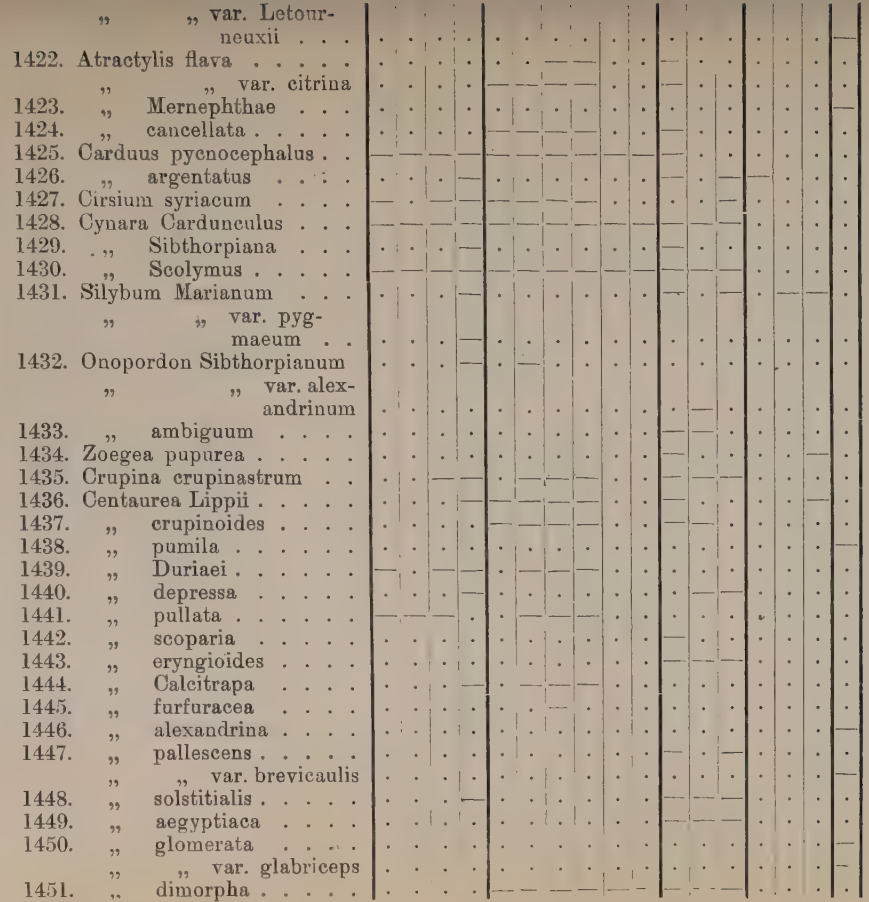
Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1327. Conyza aegyptiaca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1328. „ Dioscorides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1329. Grangea maderaspatana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1330. Ceruana pratensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1331. Laggera aurita	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1332. Sphaeranthus suaveolens	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1333. „ nubicus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1334. Evax contracta	—	.	.	—	—	—	—	—	.	.	—	—	—	.	.	.	.	
1335. „ anatolica	.	.	.	—	.	.	.	.	.	.	—	—	—	.	.	.	.	
1336. Ifloga spicata	—	.	.	.	—	—	—	—	.	.	—	—	—	.	.	.	.	
1337. Filago spathulata var. prostrata	—	—	.	.	.	.	—	—	—	.	—	—	—	.	.	—	.	
1338. „ mareotica	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
1339. Gymnarrhena micrantha	—	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
1340. Lasiopogon muscoides	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	.	
1341. Phagnalon nitidum	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.	
1342. „ Barbeyanum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1343. „ rupestre	—	—	—	—	—	—	—	—	.	.	—	—	—	.	.	.	.	
1344. Gnaphalium luteo-album	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cosmopolit.
1345. „ pulvinatum	.	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	
1346. „ crispatulum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1347. „ indicum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1348. Helichrysum conglobatum	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1349. „ Billardierii	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1350. Leyssera capillifolia	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1351. Inula crithmoides	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1352. „ viscosa	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1353. Varthemia montana	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1354. „ candicans	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1355. Iphiona mucronata	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1356. „ scabra	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	


1357. Pulicaria arabica
1358. „ sicula
1359. „ undulata
1360. „ inuloides
1361. „ crispa
1362. Anvillea Garcinii
1363. Pallenis spinosa
1364. Odontospermum pygmaeum
1365. „ graveolens
1366. Ambrosia maritima
1367. Xanthium strumarium
1368. „ spinosum
1369. Zinnia pauciflora
1370. Eclipta alba
1371. Verbesina encelioides
1372. Helianthus debilis
1373. „ argyrophyllus
1374. „ annuus
1375. „ tuberosus
1376. Coreopsis chrysantha
1377. Bidens pilosus
1378. Flaveria Contrayerba
1379. Tagetes minuta
1380. Santolina chamaecyparissus
1381. Anthemis microsperma
1382. „ indurata
1383. „ deserti
1384. „ melampodina
„ „ var. brachyota
1385. „ Chia
1386. „ Cotula
1387. „ retusa
1388. „ pseudocotula
1389. „ rotata
1390. „ mixta
1391. Anacyclus alexandrinus
1392. Achillea santolina
1393. „ fragrantissima
1394. Diotis maritima
Warmer regions.
Mexico.
Tropical Africa.
Mexico.
America.
Nubia.
America.
Africa.

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1395. Chrysanthemum coronarium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
„ „ var. discolor	.	.	.	.	—	—	—	—	—	—	.	.	.	.	.	.	.	
1396. „ Parthenium	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1397. Matricaria Chamomilla	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
1398. „ aurea	.	.	.	.	—	—	—	—	—	—	—	—	—	—	—	—	.	
1399. „ auriculata	.	.	.	.	.	.	.	—	.	.	.	.	.	.	.	.	.	
1400. „ tridentata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1401. Artemisia monosperma	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1402. „ Herba-alba	—	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
1403. „ judaica	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1404. „ arborescens	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1405. Catula anthemoides	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Tropical Africa.
1406. „ cinerea	.	.	.	.	.	—	—	—	—	—	.	.	.	.	.	.	.	
1407. Senecio belbeysius	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1408. „ flavus	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
1409. „ vulgaris	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.	
1410. „ aegyptius	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Cordofan and Nubia.
1411. „ coronopifolius	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.	
1412. Calendula palaestina var. brachyrrhicha	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1413. „ arvensis var. bicolor	.	.	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
1414. „ persica	.	.	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	
1415. „ aegyptiaca	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.	
„ „ var. suberostris	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1416. Gundelia Tournefortii	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	.	.	
1417. Echinops Hussonii	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1418. „ cornigerus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	
1419. „ glaberrimus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
1420. „ spinosus	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.	
1421. Carlina involucrata	—	—	—	—	—	—	—	—	—	—	.	.	.	.	.	.	.	
„ „ var. mareotica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	


„ „ var. Letourneuxii
1422. Atractylis flava
„ „ var. citrina
1423. „ Mernephthae
1424. „ cancellata
1425. Carduus pycnocephalus
1426. „ argentatus
1427. Cirsium syriacum
1428. Cynara Cardunculus
1429. „ Sibthorpiana
1430. „ Scolymus
1431. Silybum Marianum
„ „ var. pygmaeum
1432. Onopordon Sibthorpianum
„ „ var. alexandrinum
1433. „ ambiguum
1434. Zoegea pupurea
1435. Crupina crupinastrum
1436. Centaurea Lippii
1437. „ crupinoides
1438. „ pumila
1439. „ Duriaei
1440. „ depressa
1441. „ pullata
1442. „ scoparia
1443. „ eryngioides
1444. „ Calcitrapa
1445. „ furfuracea
1446. „ alexandrina
1447. „ pallescens
„ „ var. brevicaulis
1448. „ solstitialis
1449. „ aegyptiaca
1450. „ glomerata
„ „ var. glabriceps
1451. „ dimorpha

Names of species	Spain	France	Italy	Greece	Morocco	Algeria	Tunisia	Tripolitania	Cyrenaica	Marmarica	Arabia Petraea	Palestine	Syria	Asia Minor	Mesopotamia	Persia	Endemic	Observations
1452. Carthamus lanatus	—	—	—	—	·	·	·	·	·	·	—	·	—	·	·	·	·	
1453. „ glaucus var. syriacus	·	·	·	—	·	·	·	·	·	·	·	—	—	·	·	·	·	
„ „ var. alexandrina	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
„ „ var. tenuis	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1454. „ mareoticus	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1455. „ tinctorius	·	·	·	—	·	·	·	·	·	·	—	·	·	·	·	·	·	
„ „ var. inermis	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
1456. Carduncellus eriocephalus	·	·	·	·	·	·	—	·	·	·	·	—	—	·	·	·	·	
1457. Cnicus arvensis	·	·	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
1458. Scolymus maculatus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1459. „ hispanicus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1460. Cichorium Intybus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1461. „ pumilum	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
1462. „ endivia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1463. Koelpinia linearis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1464. Hyoseris lucida	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1465. Rhagadiolus stellatus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1466. Hedypnois rhagadioloides	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1467. Urospermum picroides	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1468. Leontodon hispidulum	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
1469. „ tuberosum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1470. Picris Sprengeriana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
„ „ var. altissima	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1471. „ strigosa	—	—	—	—	·	·	·	·	·	·	·	—	—	·	·	·	·	
1472. „ sulphurea	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
1473. „ coronopifolia	—	—	—	—	·	·	—	·	·	·	—	·	·	·	·	·	·	
„ „ var. pilosa	—	—	—	—	·	·	·	·	·	·	·	·	·	·	·	·	·	
1474. „ echioides	—	—	—	—	·	·	·	·	·	·	—	·	·	·	·	·	·	
1475. Tragopogon glaber	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·	
1476. Scorzonera alexandrina	—	—	—	—	·	·	—	—	—	·	·	·	·	·	·	·	·	

1477.	„	Schweinfurthiana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
1478.	„	hispanica	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.
1479.	Heteroderis aegyptiaca		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
1480.	Launaea mucronata		.	.	.	.	.	—	—	—	.	.	—	.	.	.	—	—	.
1481.	„	tenuiloba	.	.	.	.	.	.	.	.	.	.	—	—	.	.	.	.	
1482.	„	Cassiniana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1483.	„	angustifolia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1484.	„	nudicaulis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1485.	„	fallax	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—	.
1486.	„	massavensis	.	.	.	.	.	—	.	.	.	.	—	.	.	.	.	.	.
1487.	„	glomerata	.	.	.	.	—	—	—	—	—	—	—	—	—	.	.	.	.
1488.	„	spinosa	—	.	.	—	—	—	.	.	.	.	—	—	—	.	.	.	.
1489.	Sonchus oleraceus		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.
1490.	„	asper	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1491.	„	glaucescens	.	.	.	.	.	.	.	.	.	.	—	—	—	.	.	—	.
1492.	„	maritimus	—	—	—	.	—	—	—	—	—	—	.	.	.	.	.	.	.
1493.	„	arvensis	—	—	—	—	.	.	.	.	.	.	.	.	.	.	.	.	.
1494.	Lactuca scariola		—	—	—	—	.	.	.	.	.	.	.	.	.	—	—	—	.
1495.	„	saligna	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.
1496.	„	orientalis	.	.	.	.	.	.	.	.	.	.	—	.	.	.	.	.	.
1497.	Reichardia tingitana		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.
1498.	„	picroides	—	—	—	—	—	—	—	—	—	—	—	—	—	.	.	.	.
1499.	Crepis bulbosa		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.
1500.	„	parviflora	.	.	.	.	.	.	.	.	.	.	—	—	—	—	—	—	.
1501.	„	radicata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	—
1502.	„	aspera	.	.	.	.	.	.	.	.	.	.	—	.	—	.	.	.	.
1503.	„	bifida	.	.	.	—	.	.	.	.	.	.	—	.	—	—	.	.	.

Cosmopolit.

Appendix V.

List of the most frequent cultivated and garden plants of Egypt.

(Those species marked by an asterisk are contained in the descriptive part of the Flora.)

Coniferae.

Cupressus sempervirens.
Pinus Pinea.
„ halepensis.

Gramineae.

Sacharum officinarum.
Zea Mays.
* Euchlaena luxurians.
* Andropogon Sorghum.
* „ halepensis.
* Panicum crus galli.
* „ Sieberianum.
* „ miliaceum.
„ maximum.
„ italicum.
* Pennisetum americanum.
„ villosum.
Oryza sativa.
Eleusine flaccifolia.
* „ coracana.
* Arundo Donax.
Gynerium argenteum.
Eragrostis abyssinica.
* Triticum vulgare.
„ dicoccum.
* Hordeum vulgare.
„ vulgare subspec. hexastichon
„ „ subspec. tetrastichon

Cyperaceae.

* Cyperus alopecuroides.
* „ esculentus.
„ Papyrus.
„ alternifolius.

Palmae.

* Phoenix dactilifera.
* Hyphaene thebaica.

Araceae.

Colocasia antiquorum.

Commelinaceae.

* Commelina Boissieriana.
Rhoeo discolor.

Pontederiaceae.

* Eichhornia crassipes.

Liliaceae.

* Aloe vera.
Allium sativum.
„ porrum.
* „ cepa.
* Urginea maritima.
Hyacinthus orientalis.
Yucca gloriosa.
* Asparagus officinalis.
* Ruscus hypophyllus.

Amaryllidaceae.

Narzissus poeticus.
* „ Tazzetta.
Crinum amabile.
Polianthes tuberosa.
Agave vivipara.

Zingiberaceae.

Hedychinum Gardnerianum.

Cannaceae.

* Canna indica.

Musaceae.

Musa sapientium.
Strelitzia reginae.

Casuarinaceae.

Casuarina equisetifolia.

Salicaceae.

* Salix safsaf.
* „ tetrasperma.
* „ babylonica.
Populus alba.
„ angulata.

Moraceae.

Morus alba.
„ nigra.
Broussonetia papyrifera.
* Ficus carica.
* „ sycomorus.
* Cannabis sativa.

Ulmaceae.

Celtis australis.
Ulmus campestris.

Urticaceae.

Boehmeria nivea.

Polygonum.

Antigonum leptopus.

Chenopodiaceae.

* Chenopodium ambrosioides.
* „ botrys.
Beta vulgaris var. Rapa.
* Spinacia glabra.
* Atriplex halimus.

Basellaceae.

Boussaingaultia baselloides.

Amarantaceae.

* Amarantus caudatus.
Celosia cristata.
Alternanthera paronychioides.
Gomphrena globosa.

Nyctaginaceae.

* Mirabilis Jalappa.
Bougainvillea spectabilis.

Aizoaceae.

* Mesembrianthemum crystallinum.
Tetragonia expansa.

Portulaceae.

Portulaca sativa.

Caryophyllaceae.

Dianthus caryophyllus.
„ chinensis.

Nymphaeaceae.

Nelumbium speciosum.

Ranuculaceae.

* Anemone coronaria.
* Ranunculus asiaticus.
* Nigella sativa.
Delphinium Ajacis.

Magnoliaceae.

Magnolia grandiflora.

Papaveraceae.

Papaver somniferum.

Cruciferae.

Matthiola incana.
Cheiranthus Cheirii.
Brassica oleracea.
* „ rapa.
* „ napus.
* Sinapis juncea.
* „ alba.
* Lepidium sativum.
* „ latifolium.
* Raphanus sativus.

Resedaceae.

* Reseda alba.
* „ odorata.
* „ luteola.

Moringaceae.

* Moringa pterygosperma.

Crassulaceae.

* Bryophyllum pinnatum.
* Calenchoe deficiens.

Rosaceae.

* Rubus sanctus.
Rosa damascena.
* „ bracteata.
Fragaria vesca.

Fragaria virginiana.
Amygdalus persica.
Prunus armeniaca.
Malus communis.
Cydonia vulgaris.

Leguminosae.

Acacia Farnesiana.
* „ arabica.
* „ albida.
Albizzia lebbek.
* Caesalpinia pulcherrima.
* Cassia occidentalis.
* „ sophora.
* „ bicapsularis.
„ fistula.
Ceratonia siliqua.
Parkinsonia aculeata.
* Lupinus termis.
* Trigonella foenum graecum.
* Medicago sativa.
* Trifolium alexandrinum.
* Indigofera argentea.
* Sesbania aegyptiaca.
* Glycyrrhiza glabra.
* Arachis hypogaea.
* Cicer arietinum.
* Vicia sativa.
* „ faba.
* Lens esculenta.
* Lathyrus sativus.
* Pisum sativum.
* Vigna sinensis.
* Dolichos Lablab.

Geraniaceae.

* Pelargonium zonale.
„ radula.

Tropaeolaceae.

* Tropaeolum maius.

Linaceae.

* Linum usitatissimum.

Rutaceae.

* Ruta chalepensis.
Citrus aurantium.
„ madarensis.
„ Bigaradia.
„ decumana.
„ Limonium.
„ „ var. vulgaris.
„ „ var. dulcis.
„ medica.

Meliaceae.

Melia azedarach.

Euphorbiaceae.

* Ricinus communis.
* Euphorbia mauritanica.
„ pulcherrima.
„ neriifolia.
* Jatropha curcas.
* „ multifida.

Anacardiaceae.

* Mangifera indica.
Schinus molle.
„ therebintifolia.

Sapindaceae.

* Cardiospermum halicaccabum.
* Dodonaea viscosa.

Rhamnaceae.

Zizyphus vulgaris.
* „ jujuba.
* „ spina Christi.

Vitaceae.

Cistus rotundifolius.
* Vitis vinifera.

Tiliaceae.

* Corchorus olitorius.

Malvaceae.

* Malva parviflora.
„ verticillata.
* Althaea ficifolia.
* Abutilon angulatum.
* Hibiscus sabdariffa.
* „ cannabinus.
„ Rosa sinensis.
„ esculentus.
„ verrucosus.
* Gossypium barbadense.
* „ anomalum.
* „ herbaceum.

Sterculiaceae.

* Sterculia tomentosa.

Tamaricaceae.

* Tamarix articulata.

Passifloraceae.

* Passiflora coerulea.

Caricaceae.

Carica papaya.

Cactaceae.

* Opuntia ficus indica.
* „ inermis.
„ maxima.

Elaeagnaceae.

* Elaeagnus hortensis.

Lythraceae.

* Lawsonia inermis.

Punicaceae.

* Punica granatum.

Combretaceae.

* Terminalia glabra.

Myrtaceae.

* Eucalyptus robusta.
„ globulus.
Myrtus communis.
Psidium pyriferum.

Araliaceae.

* Hedera Helix.

Umbelliferae.

* Coriandrum sativum.
* Petroselinum sativum.
* Carum Carvi.
* Pimpinella anisum.
* Anthriscus cerefolium.
* Foeniculum capillaceum.
* Anethum graveolens.
Pastinaca sativa.
* Daucus carota.
* Cuminum cyminum.

Plumbaginaceae.

* Plumbago zeylanica.

Oleaceae.

Jasminum grandiflorum.
* „ officinale.
„ sambac.
* Olea europaea.
Ligustrum japonicum.

Apocynaceae.

* Carissa edulis.
* Vinca maior.
„ rosea.
Plumiera angustifolia.
Nerium Oleander.

Asclepiadaceae.

* Perioploca graeca.
* Asclepias fruticosa.
* „ curassavica.

Convolvulaceae.

Ipomoea tuberosa.
* „ Batatas.
* „ palmata.
* „ hederacea.

Polemoniaceae.

* Phlox paniculata.

Hydrophyllaceae.

* Hydrolea guineensis.
Wigandia caracasana.

Borraginaceae.

* Cordia myxa.
* „ crenata.
* Borrago officinalis.
Heliotropium peruvianum.
Symphytum peregrinum.

Verbenaceae.

* Lantana Camara.
* Lippia nodiflora.
* Duranta Plumierii.
Vitex agnus castus.

Labiatae.

* Ocimum basilicum.
Mentha piperita.
„ sativa.
* Origanum majorana.
* Melissa officinalis.
* Rosmarinus officinalis.
* Leonotis leonurus.

Solanaceae.

Solanum Lycopersicum.
„ macranthum.
„ melongena.
„ tuberosum.
„ aethiopicum.
* Physalis peruviana.
* Withania somnifera.
Capsicum annuum.
„ frutescens.
* Lycium vulgare.
* Nicotiana Tabacum.
* „ rustica.

* Nicotiana plumbaginaefolia.
* „ glauca.

Scrophulariaceae.

* Linaria bipartita.

Loganiaceae.

Buddleia madagascariensis.

Bignoniaceae.

Tecoma stans.

Pedaliaceae.

* Sesamum indicum.

Plantaginaceae.

* Plantago exigua.

Rubiaceae.

* Rubia tinctoria.

Caprifoliaceae.

* Sambucus nigra.
* Viburnum opulus.
* Lonicera caprifolium.

Valerianaceae.

* Centranthus macrosiphon.

Dipsacaceae.

Scabiosa atropurpurea.

Cucurbitaceae.

* Lagenaria vulgaris.
* Luffa cylindrica.
* Cucumis sativus.
* „ Melo.
* Citrullus vulgaris.
* Momordica balsamina.
* Cucurbita pepo.
* „ maxima.
* „ moshata.

Compositae.

Ageratum coelestinum.
Mikania scandens.
* Aster Novi Belgii.
Psiadia glutinosa.
Montanoa grandiflora.
* Helianthus annuus.
* Verbesina encelioides.
Ferdinanda eminens.
Coreopsis tinctoria.
Tagetes erectus.
* Chrysanthemum coronarium.
Pyrethrum Balsamita.
Argyranthemum frutescens
Artemisia Abrotanum.
* „ arborescens.
Senecio Cineraria.
Calendula officinalis.
Gazania ringens.
* Cynara scolymus.
* „ cardunculus.
Centaurea moshata.
* Scorzonera hispanica.
* Lactuca scariola.

Appendix VI.

Glossary.

A- (or *an-*), a prefix in words of Greek derivation, the *a privative*, having a negative signification and denoting the absence of some organ or quality.

Aberrant. Deviating from the established rule or type.

Abnormal. Contrary to rule; deviating from the *normal* or usual.

Abortion. The suppression or imperfect development of any part.

Abortive. Imperfectly developed.

Abrupt, abruptly. Indicating a sudden transition or termination; *abruptly pinnate*, pinnate without a terminal leaflet.

Acaulescent. Stemless or apparently so.

Accrescent. Enlarging in size with age, as the calyx of some plants after the flowering period.

Accumbent cotyledons. Having an edge against or towards the radicle.

Acerose. Needle-shaped, as a pine-leaf.

Achenium. See *Akene.*

Achlamydeous. Without perianth.

Acicular. Needle- or bristle-shaped; more slender than *acerose.*

Acinaciform. Scymetar-shaped.

Acotyledon. A plant whose embryo is without cotyledons, as *Cuscuta;* applied also to cryptogams as plants without seed or embryo.

Acrogenous. Growing by terminal buds.

Aculeate. Having sharp points or prickles.

Acuminate. Tapering to a point.

Acute. Sharp at the end, or at the edge or margin.

Adherent. Union of dissimalar parts, as when the calyx-tube is jointed to the ovary.

Adnate. United; used properly of the surfaces of different organs, as of calyx and ovary.

Adpressed. See Appressed.

Adventive. Accidentally present.

Aestivation. The arrangement of leaves or of the parts of the perianth in the bud.

Afoliate. Having no leaves.

Aggregated. Crowded together, but not coherent.

Akene; Achenium. A dry hard indehiscent 1-celled and 1-seeded seed-like fruit.

Ala, pl. *Alae.* A wing, or sometimes an axil; in mosses, applied to the basal lobes or auricles of the leaves.

Alar. In the axils or forks; also belonging to the wings or auricles.

Alate. Winged, or having expansions like wings; as sometimes on a stem or petiole, or on the fruits or seeds.

Albumen. The nutritive material of the seed, within its coats and exterior to the embryo.

Albuminous. Provided with albumen.

Alliaceous. Applied to the peculiar smell and taste of garlic and onions.

Alternate. Following one another at intervals, as leaves upon a stem; following by turns; not opposite; intermediate.

Alveolate. Honey-combed; deeply and closely pitted.

Ament. A unisexual spike with scaly bracts, as in the willow.

Amorphous. Without definite form; of abnormal form.

Amphitropous. Applied to an inverted ovule or seed with the hilum lateral.

Amplexicaul. Of leaves, clasping the stem.
Anastomosing. When one vein unites with another, the union forming a reticulation or network.
Anatropous. Of an inverted ovule or seed with the rhaphe extending its whole length.
Ancipital. Two-edged.
Androecium. The male system of a flower; the stamens collectively.
Androgynous. Having both male and female flowers.
Anemophilous. Flowers which are fertilized through the agency of the wind, the pollen being conveyed through the air.
Angiospermous. Bearing seeds in a closed pericarp.
Annual. Of only one year's duration.
Annular. Having the form of a ring.
Annulus. In mosses, the ring of cells between the operculum and the orifice of the capsule.
Anterior. Equivalent to inferior or lower, in the sense of away from the axis and toward the bract.
Anther. That part of the stamen which contains the pollen.
Antheridium. In cryptogams, the male organ of inflorescence, corresponding to the anther.
Antheriferous. Bearing anthers.
Antherizoids. In cryptogams, the minute usually ciliated organs developed by the antheridia, corresponding to pollen-grains.
Anthesis. The period of expansion of a flower.
Apetalous. Having no corolla or inner perianth.
Apex. The tip or summit of a thing.
Aphyllous. Not bearing leaves.
Apical. At the apex.
Apiculate. Abruptly terminated by a short point or tip.
Appendage. Something added or attached to an organ, but unessential to it.
Appendiculate. Furnished with appendages.
Appressed. Pressed close.
Apterous. Not winged.
Aquatic. Growing in water.
Arachnoid. Resembling cobweb.
Arborescent. Becoming a tree or tree-like.
Archegonium. In ferns, the rudimentary organ which develops into the fruit.
Arcuate. Arched; bent like a bow.
Areola, pl. *Areolae.* The spaces in any reticulated surface.
Areolate. Divided into small spaces or areolae.
Areolation. Any system of cellular or reticulated markings.
Aril. An expanded appendage to the hilum, enveloping the seed.
Arillate. Having an aril.
Arilliform. Resembling an aril.
Aristate. Having an awn.
Aristulate. Having a very small awn.
Articulated. Jointed.
Ascending. Rising somewhat obliquely, not erect.
Asperulous. Rough; harsh to the touch.
Asteroid. Having a flower resembling that of an Aster.
Attenuate. Narrowing gradually; tapering.
Auricle. A small ear-like lobe at the base of a leaf.
Auriculate. Furnished with auricles.
Awl-shaped. Shaped like the point of an awl; narrowing above to a sharp point from a rather broad base.
Awn. A bristle-like terminal or dorsal appendage.
Awned. Furnished with an awn.
Axil. The angle formed by a leaf or branch with the stem.
Axile or *Axial.* Situated in the axis or relating to it.
Axillary. Situated in an axil.
Axis. The central line of a body in the direction of its length; the stem.

Baccate. Berry-like; pulpy.
Banner. A name often applied to the standard or upper petal of a papilionaceous flower.
Barb. A sharply reflexed point upon an awn, etc., like the barb of a fish-hook.
Barbate. Bearded; provided with long weak hairs arranged in tufts.
Barbed. Furnished with barbs.
Barbellate. Provided with short stiff hairs.

Bark. The outer covering or rind of a stem.
Basal. At, from, or relating to the base.
Base. The end next the point of attachment or support; the lower end.
Basifixed. Attached by the lower end.
Basilar. See *Basal.*
Beak. A prolonged tip.
Beaked. Ending in a beak.
Berry. A simple fruit of which the whole substance, excepting the seeds, is pulpy.
Bi- or *Bis-.* A Latin prefix signifying two or twice, as *bibracteate*, with two bracts; *bidentate*, with two teeth; *biternate*, twice ternate.
Biennial. A plant which lives only two years.
Bifarious. In two ranks.
Bifid. Two-cleft.
Bilabiate. Divided into lips, as is the case with many gamopetalous corollas.
Bilocular. Two-celled.
Binate. Applied to leaves composed of two leaflets at the end of a common petiole, or to a single leaf almost divided into two.
Bipartite. Divided nearly to the base into two parts.
Bipinnate. Twice pinnate.
Biserrate. Doubly serrate.
Biternate. Twice ternate.
Bisexual. Having both stamens and pistil, or corresponding organs (in cryptogams).
Bladdery. Thin and inflated.
Blade. The expanded portion of a leaf.
Bract. A leaf or modification of a leaf subtending a flower or flower-cluster.
Bracteate. Having bracts.
Bracteolate. Having bractlets.
Bractlet. A secondary bract upon the pedicel of a flower.
Branch. A division of a stem.
Branchlet. A secondary or ultimate division of a stem.
Bristle. A stiff hair or bristle-like appendage.
Bud. The early rudimentary form of a stem or branch, or an unexpanded flower.
Bud-scales. The scales which form the outer coats of a leaf-bud.
Bulb. A subterranean roundish body, formed of fleshy scales or coatings, essentially a rudimentary stem or leaf-bud, and at length developing a flowering stem and often leaves.
Bulbiferous. Bulb-bearing.
Bulblet. A small bulb formed in the axil of a leaf or bract.
Bulbous. Producing bulbs; bulb-like.

Caducous. Falling very early; not at all persistent.
Caespitose. Growing in tufts somewhat in the same way as grass.
Calcarate. Spurred.
Callosity. A thickened and hardened swelling on the surface of any organ.
Callus. A callosity or hard protuberance.
Calycine. Relating to the calyx.
Calyculate. Having an involucre resembling a second external calyx.
Calyptra. In mosses, the hood which at first covers the capsule.
Calyx. The outer envelope of a flower.
Campanulate. Bell-shaped or cup-shaped, with broad base.
Campylotropal, Campylotropous. Applied to an ovule when one end has grown faster than the other, so as to cause the apex (or micropyle) to curve inwards and approach the hilum.
Canaliculate. Channelled; having a longitudinal groove.
Canescent. Hoary with a grayish pubescence or puberulence.
Capillary. Very slender and hair-like.
Capitate. Subglobose and terminal, like a head; collected in a head.
Capitellate. Diminutive of *capitate.*
Capsular. Relating to or like a capsule.
Capsule. A dry dehiscent fruit formed from a compound pistil; the fruit of mosses.
Carina. A keel, a prominent longitudinal ridge along the middle of a convex dorsal surface; applied also to the coherent lower petals of a papilionaceous flower.
Carinate. Keeled.
Carpel. A simple pistil or one of the several parts of a compound pistil.

Carpophore. A prolongation of the axis between the carpels, as often in the Umbelliferae.

Cartilaginous. Firm and tough like cartilage.

Caruncle. An outgrowth or expanded appendage at the base of a seed; sometimes applied to an enlargement of the rhaphe.

Caryopsis. A seed-like fruit with the very thin paricarp adherent throughout to the real seed, as in most grasses.

Catkin. A scaly unisexual spike; an ament.

Caudate. Having a tail or slender tail-like appendage.

Caudex. The trunk of a palm or other arborescent endogen; or the persistent base of any herbaceous perennial.

Caulescent. Having a manifest stem.

Cauline. On or belonging to the stem; frequently applied to the leaves growing on the stem, as opposed to those springing from near the root.

Cell. A cavity or separate inclosure, as of an ovary or anther; a minute sac or hollow structure, the unit of all cellular tissue.

Cellular. Composed of such minute cells.

Centrifugal. Developing from the centre outward, as in the cyme.

Centripetal. Developing from the margin toward the centre, or from below upward, as in the corymb, raceme, etc.

Cernuous. Nodding, usually indicating less inclination than pendulous.

Cespitose. Growing in tufts or turf-like; forming mats.

Chaff. Smal dry scales, usually membranous or scarious.

Chalaza. The proper base of an ovule, at a point opposite its orifice.

Channelled. Having a deep longitudinal groove, like a gutter.

Chartaceous. Having the texture of parchment or writing-paper.

Chlorophyll. The green matter within the cells of plants.

Chlorophyllose. Containing chlorophyll.

Ciliate. Having the margin, or sometimes the nerves, fringed with hairs.

Ciliola, pl. *Ciliolae.* Diminutive of the next; in moses, the hair-like processes between the *cilia.*

Cilium, pl. *Cilia.* A marginal hair; applied in mosses to the slender teeth of the inner peristome.

Cinereous. Ash-gray, the color of wood-ashes.

Circinate. Coiled from the tip into a spiral.

Circumscissile. Dehiscing by a transverse circular line of division.

Cirrhose. Tendril-bearing.

Cladode. A flattened branch simulating a leaf.

Clavate. Club-shaped; enlarged gradually toward the summit.

Claw. The elongated narrow base of a petal.

Cleft. Cut somewhat deeply, usually about half-way to the centre or midrib.

Cleistogamic. Producing flowers which never expand, and which are self-fertilised.

Climbing. Rising by the aid of some support.

Clustered. Collected near together.

Coalescent. United; used properly in respect to similar parts, as the stamens in Malvaceae.

Coated. Composed of coats or layers, as an onion.

Coherent. The union of one part of an organ with other parts of the same organ, as when petals cohere to form a tubular corolla etc.

Cohesion. The sticking together of parts, or their more intimate coalescence or adnation.

Collateral Side by side.

Collum. In mosses, an obconical thickening of the pedicel continuous with the capsule.

Colored. Of other color than green.

Columella. The persistent axis of a capsule.

Column. A body formed by the union of filaments (staminea) or, in orchids, of the stamens and pistil.

Coma. A tuft of hairs, especially upon a seed.

Commissure. The surface by which two carpels cohere, as in Umbelliferae.
Common. Belonging equally to more than one.
Comose. Having a coma.
Complanate. Flattened; of leaves upon a stem, lying nearly in the same plane.
Complicate. Folded together.
Compound. The opposite of *simple*; consisting of more than one; divided
Compressed. Flattened laterally.
Concave. Hollow, as the inner surface of a saucer.
Conduplicate. Doubled together lengthwise, of leaves.
Cone, or *Strobile.* A dry multiple fruit formed of densely imbricated scales.
Confervoid. Of slender diffuse filamentose structure, like *Conferva* among the Algae.
Confluent. Blended or running together.
Congested. Crowded together.
Conglobate. Collected into a ball or globe.
Congomerate. Clustered densely together.
Conical. Shaped like a cone; narrowing to a point from a circular base.
Coniferous. Bearing cones.
Conjugate. Arranged in single pairs.
Connate. United in one; growing together.
Connective. The portion of the filament which connects the cells of the anther.
Connivent. Coming in contact; converging together.
Constricted. Contracted or drawn together, as a bag by its string.
Continuous. Not interrupted by joints or otherwise.
Contorted. Twisted; in aestivation, an equal and uniform somewhat oblique overlapping and rolling up of the parts of the circle.
Contracted. Reduced in width or length.
Convex. Having a more or less rounded surface; opposed to "concave".
Convolute. Rolled together from one edge. See *Contorted.*
Cordate. Heart-shaped, i. e. ovate with rounded lateral lobes projecting beyond the base and forming a sinus.
Coriaceous. Of the stiffness and consistence of leather.
Corky. Resembling cork.
Corm. A solid fleshy rounded or depressed subterranean body, the base of a stem and bulblike in appearance.
Corneous. Of the consistence of horn; horny.
Corolla. The inner perianth, within the calyx, consisting of the petals.
Corolline. Seated or belonging to the corolla. — Corolla-like or petaloid.
Corona, or *Crown.* An appendage at the throat of the corolla, or a crown-like margin at the top of a seed or other organ.
Coronate. Having a crown.
Cortex. The bark, or similar outer covering.
Cortical. Relating to the cortex.
Corticated. Having a cortex.
Corymb. A flat-topped or convex open inflorescence, with short axis, flowering from the margin inward; a depressed raceme.
Corymbose. In corymbs or resembling a corymb.
Costa. A rib, mid-rib, or mid-nerve.
Costate. Having one or more longitudinal ribs or nerves.
Cotyledons. The seed-lobes or leaves of the embryo.
Crateriform. Shaped like a goblet or shallow cup.
Creeping. Running upon or under the ground and rooting.
Crenate. Scalloped; having rounded teeth with shallow acute sinuses.
Crenulate. Finely crenate.
Crested. Having an elevated ridge or appendage like the crest of a helmet.
Cribose. Perforated, like a coarse sieve.
Cristate. Crested.
Crown. See *Corona.*
Cruciferous. Belonging to the Cruciferae, with *cruciform* or cross-shaped corolla.
Crustaceous. Hard and brittle.

Cryptogamous. Flowerless, fructifying without the agency of proper stamens and pistils.

Cucullate. Shaped like a hood or cowl, concave and somewhat arched, or like an ovate leaf with edges inrolled; in mosses, applied to a conical calyptra cleft at one side.

Culm. The hollow jointed stem peculiar to grasses.

Cultrate, or *Cultriform.* Shaped like a coulter or broad knife-blade.

Cuneate, or *Cuneiform.* Wedge-shaped; triangular with the angle downward.

Cupule. A cup-shaped involucre inclosing a nut, as of an acorn.

Cupuliferous. Cupule-bearing.

Cusp. A sharp rigid point.

Cuspidate. Terminating in a cusp.

Cut. Cleft or incised.

Cuticle. The outer skin or epidermis; the thin outer layer of the bark.

Cyathiform. Cup-shaped with a somewhat flaring mouth.

Cylindraceous. Somewhat or nearly cylindrical.

Cylindrical. In the form of a cylinder.

Cyme. A broad and flattish inflorescence, flowering from the centre outward.

Cymelet. A small cyme.

Cymose. In cymes or cyme-like.

Decandrous. Having ten stamens.

Deciduous. Falling off after a time; not persistent.

Declinate, or *Declined.* Bent or curved downward.

Decompound. Repeatedly compound or divided.

Decumbent. Reclining at base, the summit ascending.

Decurrent. Running down the stem, applied to a leaf prolonged below its insertion.

Decussate. In pairs alternating at right angles, or similarly in threes.

Definite. Of a constant number, not exceeding twenty; limited or determinate, as *definite inflorescence,* in which a flower terminates the axis.

Deflexed. Bent or turned down abruptly.

Dehiscence. The regular opening of a capsule or anther-cell at maturity; the longitudinal splitting of the teeth in mosses, etc.

Dehiscent. Opening regularly by valves, slits, etc.

Deltoid. Having the shape of the Greek letter *delta,* Δ; broadly triangular.

Dendroid, or *Dendroidal.* Tree-shaped; branching in the form of a tree.

Dentate. Toothed; having symmetrical teeth projecting straight outward.

Denticulate. Minutely toothed.

Depauperate. Impoverished; reduced in size by unfavorable surroundings.

Dependent. Hanging down.

Depressed. Somewhat flattened from above.

Determinate. Limited. See *Definite.*

Dextrorse. Toward the right hand; aplied to spirals as seen from without. It is frequently used as if the spiral were seen from within, in which case it indicates just the opposite direction.

Di-, Dis-. A prefix in Greek words signifying two or twice.

Diadelphous. In two sets or clusters.

Diandrous. Having two stamens.

Dicarpellary. Consisting of two carpels.

Dichotomous. Forking regularly by pairs.

Diclinous. Of separate sexes; unisexual.

Dicotyledonous. Having an embryo with two cotyledons.

Didymous. In pairs; twin.

Didynamous. Having four stamens disposed in two unequal pairs.

Diffuse. Widely spreading; widely and loosely branched.

Digitate. Fingered; applied to a compound leaf having the leaflets all diverging from the top of the petiole.

Dilated. Widened; expanded.

Dimerous. Having all the parts in twos, as the sepals, petals, stamens, etc., of a flower.

Dimidiate. Halved, as though one-half were wanting.

Dimorphous. Occurring in two forms.

Dioecious. Unisexual, the flowers of different sexes borne by separate plants.
Dioecio-polygamous. Dioecious with some perfect flowers intermixed.
Dipetalous. Having two petals.
Diphyllous. Two-leaved.
Dipterous. Two-winged.
Disciform. In the shape of a disk, depressed and circular.
Discoid. In compound flowers, having disk-flowers only, without rays.
Disk. A dilation or development of the receptacle around the base of the pistil. In compound flowers, the inner series of tubular flowers as distinct from the marginal ray.
Dissected. Deeply cut or divided into numerous segments.
Dissepiment. A septum or partition separating the cells of an ovary or fruit.
Distichous. Arranged in two vertical rows; two-ranked.
Distinct. Separate; not united.
Divaricate. Widely divergent, nearly at right angles.
Divergent. Receding from each other.
Divided. Cleft to the base or to the mid-nerve.
Dorsal. Upon or relating to the *dorsum*, or back.
Dorsifixed. Attached by or on the back.
Dossed. Marked with transparent receptacles of oil, looking like dots.
Drupaceous. Resembling or of the nature of a drupe.
Drupe. A stone-fruit; a fleshy or pulpy fruit with the seed or kernel inclosed in a hard or stony casing *(putamen)*.
Drupelet. A diminutive drupe, as each of the several parts of a blackberry.
Dwarf. Much below the ordinary size of its kind.

E-, or *Ex.* A Latin prefix having often in botanical terms a privative signification.
Ebracteate. Without bracts.
Ecalcarate. Without spurs.
Echinate. Beset with prickles.
Ecostate. Without costa or midnerve.
Edentate. Without teeth.
Effuse. Very diffuse; very loosely spreading.
Eglandulose. Without glands.
Ellipsoidal. Nearly elliptical; or of solids, elliptical in outline.
Elliptical. In the form of an ellipse, oblong with both ends uniformly and somewhat gradually rounded.
Elongated. Drawn out in length.
Emarginate. Notched at the extremidy.
Embracing. Clasping at base.
Embryo. The rudimentary plantlet formed within the seed.
Emergent, Emersed. Raised above the water; of the capsule in mosses when barely exserted from its involucral leaves.
Endemic. Confined to a particular country or region.
Endocarp. The inner layer of the pericarp, lying next to the seed.
Endogenous. Growing from within, instead of by superficial increments, the growth ordinarily being general throughout the substance of the stem.
Endogens. Plants with an endogenous structure.
Ensiform. Sword-shaped, as the leaf of an Iris.
Entire. With the margin uninterrupted, without teeth or division of any sort.
Ephemeral. Lasting but a day or for a very short time.
Epi-. A Greek prefix signifying upon.
Epicarp. The external layer of a pericarp.
Epidermis. The thin membrane forming the outer surface of leaves and young stems.
Epigynous. At or upon the top of the ovary.
Epipetalous. Inserted upon the petals.
Equal. Alike in size, or number, etc.; more frequently used in respect to length.
Equitant. Astride, of conduplicate leaves which fold over each other in two ranks, as in Iris.
Erect. Upright; perpendicular to the surface of attachment.
Etiolated. Blanched by darkness.

Eu-. In Greek compounds, good, true, proper; applied in sectional names to the more typical division of a genus.
Evergreen. Bearing its foliage through all the seasons.
Exalbuminous. Destitute of albumen.
Exceed. To surpass in length.
Excentric. Out of the centre; one-sided.
Excurrent. Running out, as a nerve projecting beyond the apex or margin of the leaf.
Exocarp. The outer portion of a pericarp.
Exogenous. Growing by successive external layers as in dicotyledonous plants.
Exogens. Plants having an exogenous structure.
Expanded. Spread out.
Explanate. Opened out flat.
Exsert, Exserted. Projecting beyond an envelope, as stamens standing out of the corolla.
Exstipulate. Without stipules.
Exterior. Outer.
Extra-axillary. Growing from outside of the axil.
Extrorse. Directed outward.

Falcate, or Falciform. Sickle-shaped; strongly curved and more or less flattened or folded.
Farinaceous. Mealy; containing or yielding flour or starch.
Farinose. Covered with a white mealy powder.
Fascicle. A close bundle or cluster.
Fascicled. Arranged in close clusters.
Fastigiate. With branches erect, parallel and near together, as in the Lombardy poplar.
Faveolate, Favose. Pitted or honeycombed.
Feather-veined. Pinnately veined.
Ferruginous. Of the color of iron-rust.
Fertile. Capable of producing fruit, as a pistillate flower; applied also to a pollen-bearing stamen.
Fertilization of plants. The application and action of pollen upon the pistil and ovule, effecting fructification.
Fibrous. Composed of threads or fibres.
Fiddle-shaped. Obovate with a contraction or sinus on each side.
Filament. That part of the stamen which supports the anther; any thread-like body.
Filamentous. Composed of threads or filaments.
Filiform. Thread-shaped; long, slender and terete.
Fimbriate. Fringed with narrow processes; having the margin finelly dissected.
Fistular. Hollow and cylindrical.
Flabellate, Flabelliform. Fan-shaped; dilated and rounded above, from a cuneate base.
Flaccid. Flabby; limp.
Flagellate. Producing *flagellae*, filliform runners or runner-like branches.
Flagelliform. Long and slender, like a whiplash.
Flavescent. Pale yellow.
Fleshy. Succulent, juicy.
Flexuous, or *Flexuose*. Bent or curving alternately in opposite directions.
Floccose, Bearing or clothed with locks of fine hair or wool.
Floral. Belonging to the flower.
Floret. A small flower; one of a head.
Floriferous. Flower-bearing.
Foliaceous. Leaf-like in structure and appearance; leafy.
Foliate. Having leaves, as in *bifoliate*, etc.
Foliolate. Having leaflets.
Follicle. A pod, formed from a simple pistil, dehiscing along the ventral suture only.
Follicular. Pertaining to a follicle or like it in structure.
Food-stalk. A petiole, pedicel, or other slender support.
Foramen. The narrow orifice at the apex of an ovule.
Forked. Branching equally, or divergently.
Foveate. Pitted; marked by deep depressions.
Foveolate. Diminutive of the last; marked by minute pits.
Free. Not adnate or coherent to other organs.
Fringed. See *Fimbriate*.

Frond. The leaf of ferns; the leaf-like expanded vegetation of some Hepaticae; applied also to the peculiar growth of the Lemnaceae.

Frondose. Frond-like, or bearing fronds.

Fructification. The bearing of fruit, or the organs concerned in the production of fruit.

Fruit. The matured seed- or spore-vessel, of whatever kind, with its appendages and contents.

Frutescent. Shrubby or somewhat so.

Fruticose. Decidedly shrubby.

Fruticulose. Diminutive of the last; shrubby, but small.

Fugacious. Soon falling; of short continuance.

Fulcrate. Subtended or surrounded by bracts, or the like.

Fulvous. Dull brownish or grayish yellow.

Fungous. Spongy; fungus-like.

Funiculus. The stalk of an ovule or seed.

Funnel-form. Tubular, but expanding gradually from the narrow base to the spreading border or limb.

Furcate. Forked; with divergent branches.

Furrowed. Deeply grooved longitudinally.

Fusiform. Spindle-shaped, i. e. tapering toward each end from a thickened middle.

Galea. A helmet; applied to the helmet-shaped portion of the corolla in Labiatae, Aconitum, etc.; also to the upper lip of some Scrophulariaceae, though not so shaped.

Galeate. Having a galea.

Gamopetalous. Applied to a corolla whose parts are not distinct but more or less coalescent; monopetalous.

Gamophyllous. With united or coalescent leaves or parts, applied either to corolla or calyx.

Gamosepalous. Having the sepals more or less coalescent.

Geminate. In pairs; binate; twin.

Generic. Relating to the genus.

Geniculate. Bent abruptly at an angle, like the knee.

Genus, pl. *Genera.* The divisions of an Order or Family, each consisting of a more or less clearly defined group of nearly related species.

Germination. The sprouting of a seed; the development of the young plant from the embeyo.

Gerontogaeous. Belonging to the Old World.

Gibbous. Protuberant; swelling out and somewhat saccate at one side.

Glabrate. Becoming glabrous.

Glabrous. Without hairs, pubescence or roughness.

Gland. Any secreting structure, depression or prominence, on any part of a plant, or any structure having a similar appearance.

Glandular. Bearing glands, or gland-like.

Glaucescent. Somewhat glaucous; becoming glaucous.

Glaucous. Covered with a fine whitish bloom that is easily rubbed off; having a bluish-hoary appearance.

Globose, Globular. Round; spherical, or nearly so.

Glochidiate. Barbed, like a fish-hook.

Glomerate. Closely clustered.

Glomerule. A compact somewhat capitate cyme.

Glumaceous. Glume-like; having glumes; chaffy.

Glume. In grasses, the chaff-like bracts subtending the spikelets.

Glutinous. Viscid; sticky; covered with a sticky secretion.

Grain. The fruit of grases. See *Caryopsis.*

Gramineous. Relating to or resembling the grasses.

Granular. Composed of small grains or grain-like bodies; rough with grain-like prominences.

Gymnosperms. Plants having naked seeds, or in which the typically naked ovule is fertilized directly by the pollen without the intervention of a stigma.

Gynandrous. Having the stamens adnate to the pistils and style, so as to be apparently borne at or upon its summit, as in Orchids.

Gynobase. A short thick prolongation of the axis or receptacle upon which

the pistil rests; sometimes applied to a shortened carpophore.

Gynoecium. A term applied to the pistil or aggregate pistils of a flower.

Gynophore. The stalk or support of the ovary.

Gyrate. Curved into a circle or spiral; circinate.

Habit. The general form and appearance of a plant.

Habitat. The locality or geographical range of a plant.

Hairs. Slender cellular outgrowths from the epidermis of plants, of various forms and kinds.

Hairy. Covered with hairs, more or less loosely.

Halbert-shaped. See *Hastate.*

Hamate. Curved at the end into a hook.

Hamulate. Diminutive of the last.

Hastate. Triangular or arrow-shaped with the basal angles or lobes directed outward.

Head. A cluster of flowers, which are sessile or nearly so upon a very short axis or receptacle; a shortened spike.

Heart-shaped. Cordate; ovate with a sinus between the rounded basal lobes.

Herb. A plant that has no persistent wody growth above the base.

Herbaceous. Having the character of an herb; not woody or shrubby.

Herbarium. A systematically arranged collection of dried plants.

Heterogamous. Bearing two hinds of flowers.

Heterogeneous. Dissimilar; differing in kind.

Heteromallous. Spreading in all directions.

Heteromorphous. Of different forms.

Heterophyllous. Having leaves of different forms.

Heterosporous. Bearing spores of more than one kind.

Hilum. The scar or place of attachment of the seed.

Hippocrepiform. Having the shape of a horseshoe.

Hirsute. Pubescent with rather coarse or stiff hairs.

Hispid. Beset with rigid or bristly hairs.

Hispidulous. Minutely hispid.

Hoary. Grayish-withe with a fine close pubescence.

Homogamous. Having only one kind of flowers.

Homogeneous. Uniform in character, nature or kind.

Homomallous. Secund; turned to one side.

Hood, Hooded. See *Cucullate.*

Hyaline. Transparent; translucent.

Hybrid. A cross between two species, produced by the fertilization of the flower of one species by the pollen of another.

Hypocrateriform, or *Hypocrateri-morphous.* The same as salverform.

Hypogaeous. Growing or remaining under ground.

Hypogynous. Growing upon the receptacle of the flower at the base of the pistil, and free from the perianth.

Imbricate. Overlapping, as the scales of the several series of an involucre; in aestivation, applied to cases where at least one part of the calyx (or corolla) is wholly external and one wholly internal, as distinct from *convolute,* where none are either wholly external or internal, and from *valvate,* where none overlap.

Immarginate. Not margined or bordered.

Immersed. Growing wholly under water; in mosses, used of a capsule inclosed within its involucral leaves.

Imparipinnate. Pinnate with an odd terminal leaflet.

Inaequilateral. With unequal sides.

Incised. Irregularly, sharply and deeply cut.

Included. Inclosed by the surrounding organs; not exserted.

Incomplete. Not perfect; wanting some of its parts.

Incubous. Imbricate upward, having the tip of one leaf resting upon the base of the one above it.

Incumbent. Resting upon; of cotyledons, lying with one side toward

the radicle; of anthers, lying against the face or inner side of the filament.

Incurved. Curved inward.

Indefinite. Of number, variable or very numerous; indeterminate.

Indehiscent. Not opening regularly by valves or otherwise.

Indeterminate. Of inflorescence, not definitely terminated but continuous with the axis, the lower or marginal flowers being the first to open.

Indigenous. Native to the country.

Induplicate. With margins folded inward.

Indusium. In ferns, the shield- or scale-like covering of the fruit-cluster.

Inferior. Lower; that part of a flower, etc., which is toward the bract; applied also to a calyx that is free from the ovary, and to an ovary that is adnate to the calyx.

Inflated. Bladdery.

Inflexed. Bent or turned abruptly inward.

Inflorescence. The flowering portion of a plant, and especially the mode of its arrangement.

Infra-axillary. Below the axil.

Infundibuliform. See *Funnelform.*

Innate. Borne upon the upper surface of a support, as an anther upon the summit of its filament, the cells dehiscing marginally.

Innovation. A shoot by which the growth and continuance of the plant is prolonged, used especially of mosses.

Inserted. Attached to or growing upon.

Insertion. The place or mode of attachment of an organ.

Internode. The part of a stem between two nodes.

Introrse. Turned inward toward the axis.

Involucellate. Provided with an involucel.

Involucel. An inner or secondary involucre; that which surrounds an umbellet.

Involucrate. Having an involucre.

Involucre. A circle or circles of scales, bracts or leaves, distinct or united, surrounding a flower or flower-cluster; in Umbelliferae, the bracts subtending the umbel.

Involute. Rolled inward.

Irregular. Not regular; unsymmetrical; with its parts unequal or unlike.

Isomerous. Having an equal number of parts in successive series, as of sepals, petals, stamens, etc.

Jointed. Having joints or nodes.

Julaceous. Resembling an ament.

Keel. A central dorsal ridge, resembling the keel of a boat; the united lower petals of a papilionaceous flower.

Keeled. Carinate; having a keel.

Kerned. The seed within a nut; a grain: properly, the contents of the seedcoats, consisting of the embryo and albumen.

Kidney-shaped. See *Reniform.*

Labellum. A lip, as in Orchids.

Labiate. Lipped; applied to an irregular corolla or calyx which is unequally divided into two parts or lips.

Labiatiflorous. Having flowers with a labiate corolla.

Lacerate. Torn; irregularly and deeply cleft.

Laciniate. Cut into narrow slender teeth or lobes.

Lactescent. Yielding milky juice.

Lacunose. Having numerous pits, depressions or cavities.

Lacustrine. Living in lakes, ponds or swamps.

Lageniform. Gourd-shaped.

Lamella. A thin plate or scale.

Lamellar. Composed of thin plates.

Lamina. The blade or dilated portion of a leaf.

Lanate. Covered with long curled hairs like wool.

Lanceolate. Shaped like a lance-head; tapering upward from a narrowly ovate or subovate base.

Lanuginous. Provided with wool; woolly.

Lateral. At the side; attached to the side.

Lavender-color. A pale grayish blue.

Lax. Loose, distant.

Leaf. The principal organ of vegetation borne by the stem, in which the sap is elaborated for the growth of the plant.

Leaf-blade. The dilated portion of a leaf.

Leaf-bud. A bud which is the rudiment of a branch and tends to develop into one.

Leaflet. A separate division of a compound leaf.

Leafstalk. The footstalk or petiole of a leaf.

Leathery. Resembling leather; coriaceous.

Legume. A normally 1-celled capsule, formed from a single carpel, but dehiscing by two valves, as in the Pea.

Leguminous. Pertaining to or bearing legumes.

Lenticular. Lens- or lentil-shaped; of the form of a double-convex lens.

Lentiginous. Covered with minute dots or freckles.

Liber. The inner and often fibrous layer of bark.

Lid. The top of a capsule separating by transverse dehiscence.

Ligneous. Woody.

Ligule. A small tongue-like or strap-shaped body, applied to the corolla of ray flowers in Compositae, to the thin appendage at the junction of the blade with the sheath in grasses, etc.

Ligulate. Furnished with a ligule; strap-shaped.

Liguliflorous. Having only flowers with ligulate corollas, as in certain Compositae.

Liliaceous. Lily-like.

Limb. The dilated and usually spreading portion of a perianth or petal, as distinct from the tubular part or claw; the blade of a leaf.

Limbate. Bordered.

Line. The twelfth part of an inch, nearly equivalent to two millimeters.

Linear. Narrow and elongated, with parallel margins.

Lineate. Marked with lines.

Lineolate. Marked with fine lines.

Linguiform, Lingulate. Tongue-shaped; ligulate.

Lip. Either of the two divisions of a bilabiate corolla or calyx; in Orchids, the upper petal, usually very different from the others.

Littoral. Growing on shores, of the sea, or rivers, etc.

Lobate, Lobed. Divided into or bearing lobes.

Lobe. Any division of a leaf, corolla, etc., especially if rounded.

Locellate. Having its cells subdivided, as the cells of an anther bilocellate by a cross-partition.

Locular. Celled, as bilocular, trilocular, etc.

Loculicidal. Used when the cells of a capsule open by dehiscence through the dorsal suture.

Lodicule. A name applied to the minute hyaline scales in the flower of grasses.

Loment. A legume jointed and usually constricted between the seeds.

Lomentaceous. Bearing or resembling a loment.

Lorate. Strap-shaped; elongated-linear.

Loricate. Covered with imbricated scales.

Lucid. Smooth and shining.

Lunate. Crescent-shaped.

Lurid. Of a dull dirty-brown color.

Lutescent. Yellowish; pale yellow.

Lyrate. Pinnatifid with the terminal lobe largest and rounded, the lower lobes small.

Macro-. A Greek prefix signifying large or long.

Macrospore. In some cryptogams, the larger of the two kinds of spores.

Maculate. Marked with spots or blotches.

Male. Staminate.

Mamillate. Bearing nipple-shaped prominences.

Marcesent. Withering and persistent.

Marginally. Along the edge.

Marginate, Margined. Furnished with a border peculiar in structure or appearance.

Maritime. Belonging to the sea or sea-coast.

Mealy Covered with a whitish mealy powder.

Medial, Median. Running through the middle longitudinally.
Membranous, Membranaceous. Thin and rather soft and translucent, like membrane.
Microspore. The smaller kind of spore in some cryptogams.
Midrib, or *Midnerve.* The central and principal nerve of a leaf.
Mitriform. Mitre-shaped, i. e. conical and slightly narrowed toward the mouth.
Monadelphous. Having the stamens all united by their filaments into a column or tube.
Monandrous. Having a single stamen.
Moniliform. Resembling a necklace or string of beads; contracted or interrupted at regular intervals.
Monocarpellary. Formed of a single carpel.
Monocarpic. Bearing fruit but once.
Monocotyledon. A plant whose embryo has a single cotyledon.
Monoecious. With stamens and pistils (or their equivalents in cryptogams) in separate flowers upon the same plant.
Monopetalous. Gamopetalous, having the corolla in one piece, at least at base.
Monophyllous. One-leaved; composed of a single leaf.
Monosepalous. Gamosepalous, having the calyx more or less in one piece.
Monospermous. One-seeded.
Mucilaginous. Slimy, like mucilage.
Mucro, Mucronation. A short and small abrupt tip.
Mucronate. Terminating in a mucro.
Mucronulate. Ending with a minute mucro.
Multicipital. Many-headed, applied to a much-branched rootstock.
Multifarious. Arranged in many ranks.
Multifid. Cleft into many lobes or segments.
Multijugate. Consisting of many pairs.
Multilocular. Many-celled.
Muricate. Rough, with short hard points.
Muriculate. Finely muricate.
Muticous. Blunt; without a point.
Naked. Bare; without its usual appendages or covering, as a stem without leaves.
Navicular. Boat-shaped.
Nectar. A sweet secretion within a blossom.
Nectariferous. Secreting nectar.
Nectary. Any part or appendage of a flower which may be supposed to secrete nectar.
Nerve. A simple vein; a rib.
Nerved. Having nerves.
Netted. Reticulated; cross-veined like a net.
Nodding. Hanging down; somewhat inclined from the perpendicular.
Node. A knot or swelling; a place upon a stem where a leaf or whorl of leaves is borne.
Nodose. Having knots or swelling joints.
Normal. According to rule or standard; not varying from the type.
Numerous. Indefinite in number.
Nut. A hard indehiscent one-seeded fruit, usually resulting from a compound ovary.
Nutlet. A small nut; also applied to the hard seedlike divisions of the fruit of the Labiatae, Verbena etc.

Ob-. A Latin prefix usually signifying inversion, or the reverse of the primary word.
Obcompressed. Flattened contrary to the direction of the sides, dorsally, instead of laterally.
Obconical. Resembling an inverted cone.
Obcordate. Inverted cordate, the lobes directed outward.
Oblanceolate. Inverted lanceolate, with the broadest part toward the apex.
Oblique. Turned to one side; unequally sided.
Oblong. Considerably longer than broad and with nearly parallel sides.
Obovate. Inverted ovate, the broader part toward the apex.
Obovoid. Inverted egg-shaped, the broader part above.
Obtuse. Blunt or rounded at the end.
Obversely. In a reverse manner.
Ochraceous. Ochre-color, light yellow with a tinge of brown.

Ochroleucous. Yellowish white.
Ocreate or *Ochreate.* Furnished with an *ocrea*, a tubular stipule sheathing the stem.
-Oid (-oides). A Greek termination signifying resemblance.
Opaque. Dull, not shining
Operculate. Provided with an operculum.
Operculum. A lid, separating by a transverse line of dehiscence.
Opposite. Standing against or facing each other, as a stamen against a petal, or two leaves at the same node.
Orbicular. Circular or nearly so.
Order. A principal group next above the genus in rank, and including related genera more or less distinguished from others by certain common characters.
Ordinal. Relating to orders.
Organ. Any part of a plant concerned in its growth and welfare, having a special object to serve and more or less essential.
Orthotropous. Applied to an ovule or seed that is straight and attached immediately by its base.
Osseous. Bony.
Oval. Broadly elliptical.
Ovary. The dilated portion of the pistil, bearing and containing the ovules.
Ovate. Shaped like the longitudinal outline of an egg, the broader portion toward the base; also egg-shaped and applied to solids.
Ovoid. Egg-shaped.
Ovule. A rudimentary organ which after impregnation becomes a seed.
Ovuliferous. Bearing ovules.

Palate. A protrusion of the lip of a bilabiate corolla.
Palea. A chaff or chaffy bract; in grasses, the two inner bracts of the flower.
Paleaceous. Chaffy or furnished with chaff.
Palet. The same as *palea*, used especially of grasses.
Palmate. Of leaves, compound with the leaflets radiating from the summit of the petiole.
Palmately. In a palmate manner.
Palmatifid. Palmately cleft or divided.
Pandurate. See *Fiddle-shaped.*
Panicle. A loose irregularly branched inflorescence.
Panicled, Paniculate. After the manner of a panicle; bearing a panicle.
Papilionaceous. Butterfly-like; applied to the peculiar irregular flower common in the Leguminosae.
Papillose, Papillate. Bearing minute thick nipple-shaped or somewhat elongated projections.
Pappus. In compositae, the hairs, bristles, or scales crowning the akene and taking the place of a calyx.
Papyraceous. Having the texture of paper.
Paraphyses. In mosses, the minute filiform bodies which accompany the male and female organs.
Parasitic. Growing upon and deriving nourishment from another plant.
Parenchyma. The soft cellular tissue of plants, at the green fleshy part of a leaf.
Parenchymatous. Like or formed of parenchyma; also applied to cells narrower at the ends and overlapping each other.
Parietal. Relating to or situate upon the walls of a cavity.
Paripinnate. Evenly or abruptly pinnate, the terminal odd leaflet wanting.
Parted. Cleft nearly to the base.
Partial. Secondary as distinguished from the principal and primary.
Partition. An inner wall or dissepiment.
Patelliform. Trencher-shaped, with the margin less raised than in Scutelliform.
Patent. Widely spreading.
Patulous. Sligthly or moderately spreading.
Pauciflorous. Few-flowered.
Pear-shaped. Obovoid or obconical with a somewhat tapering base and usually oblique or unsymmetrical.
Pectinate. Comb-like: cleft with narrow closely set segments.
Pedate. Palmately divided or parted with the lateral divisions again 2-cleft.

Pedicel. The footstalk or support of a flower.
Pedicellate. Borne on a pedicel.
Peduncle. A general or primary flower-stalk.
Pedunculate. Furnished with a peduncle.
Peltate. Shield-shaped; flat and attached to its support by its lower surface.
Pendent. Hanging on its stalk or support.
Pendulous. Haging nearly inverted from its support; of ovules, more or less drooping, as distinct from suspended.
Penicillate. Resembling a brush of fine hairs.
Pepo. A cucurbitaceous fruit.
Perennial. Persistent a series of years.
Perfect. Of a flower, having both stamens and pistil.
Perfoliate. Of leaves, connate about the stem.
Perianth. The floral envelopes, i. e. the calyx and corolla, so far as present.
Pericarp. The seed-vessel or ripened ovary.
Perichoetium. The leafy involucre surrounding the archegonium and base of the pedicel in mosses.
Perigynium. The sac-like envelope or the bristles or scales which in Cyperaceae represent the perianth.
Perigynous. Surrounding the ovary but adnate to the perianth.
Peristome. In mosses, the fringe of teeth or hairs at the orifice of the capsule.
Persistent. Not falling off; of leaves, continuing through the winter.
Personate. Used of a labiate corolla with prominent palates closing the throat.
Petal. One of the parts of a polypetalous or nearly divided corolla.
Petaloid. Colored and resembling a petal.
Petiolar. Borne upon or relating to a petiole.
Petiole. The footstalk of a leaf.
Petioled, Petiolate. Having a petiole.
Petiolule. The footstalk of a leaflet.
Phaenogam. A *phaenogamous* plant, fructifying by means of stamens and pistils.
Phanerogam. The same as *Phaenogam.*
Phyllode. A leaf reduced to a simple petiole, which may be more or less dilated vertically.
Piliferous. Bearing or tipped with hairs.
Pilose. Hairy, usually with soft distinct hairs.
Pinna. One of the principal divisions of a compoundly pinnate leaf.
Pinnate. Having its parts arranged in pairs along a common rhachis.
Pinnately. In a pinnate manner.
Pinnatifid. Pinnately cleft into opposite nearly equal segments.
Pinnatisect. Pinnately divided down to the midrib.
Pinnule. A secondary pinna, i. e. one of the pinnate divisions of a pinna.
Pisiform. Resembling a pea in shape and size.
Pistil. The female organ of a phaenogam, consisting of the ovary with its styles and stigmas.
Pistillate. Having a pistil and no stamens, as distinct from perfect or staminate.
Pistillidium. See *Archegonium.*
Pith. The soft and spongy central cellular part of a stem.
Pitted. Marked with small depressions or pits.
Placenta. That part of the ovary or fruit which bears the ovules and seeds.
Plane. Having a flat surface.
Plicate. Folded into plaits, like a fan.
Plumose. Plume-like; having fine hairs on each side like a feather.
Plumule. The bud or growing point of the embryo between the cotyledons.
Pluri-. In compound words, several; as *plurifoliolate*, with several leaflets, etc.
Pod. A capsule, usually of cruciferous or leguminous plants.
Pointless. Without a point, blunt.
Pollen. The powdery or sometimes waxy contents of the anther.
Poly-. In compound words, many; as *polyandrous*, having many stems.

Polygamous. Having both perfect and unisexual flowers upon the same plant.
Polymorphous. Of many forms; variable in form.
Polypetalous. Having distinkt petals.
Pome. A fleshy fruit, like the apple, enclosing several parchment-like or bony carpels.
Posterior. In an axillary flower, the side toward the axis and away from the bract
Praemorse. Terminating abruptly, as if bitten off.
Prickle. A small spine, an outgrowth of the bark or cuticle.
Process. Any projecting appendage; in mosses, the inner teeth or cilia of the peristome.
Procumbent. Lying upon the ground.
Produced. Extended or prolonged.
Proliferous. Producing offshoots.
Prosenchymatous. Formed of more or less elongated tubular cells placed end to end.
Prostrate. Lying flat on the ground.
Prothallus. In the higher cryptogams, the immediate frondaceous or filamentose product of the germination of the spore, upon which are developed sexual organs or new plants.
Pruinose. Covered with a minute bloom or powder.
Pseudopodium. The stalk supporting the capsule in Sphagnaceae.
Puberulent. Very minutely pubescent.
Pubescent. Covered with hairs, usually short and soft.
Pulverulent. Dusty, as if covered with a minute powder.
Pulvinate. Cushion-shaped; growing in thick mats or cushions.
Punctate. Dotted with minute depressions, or with translucent internal glands or colored dots.
Puncticulate. Very minutely punctate.
Pungent. Terminating in a rigid and stout sharp point or prickle.
Pustular. Having low elevations, like small blisters.
Putamen. The bony or crustaceous shell inclosing the seed of a drupe.
Pyramidal. Shaped like a pyramid; narrowing to an apex from an angular base.
Pyriform. Pear-shaped.

Quadrangular. Having four angles or corners.
Quadrate. Square in form.
Quadriferous. Arranged in four vertical rows or ranks, as the leaves of many species of Veronica.

Raceme. A form of inflorescence with pedicellate flowers upon a simple prolonged axis, the flowers developing from below upward.
Racemose. In racemes, or resembling a raceme.
Radial. Belonging to the ray of a compound flower.
Radiate. Diverging from a common centre; bearing ray flowers.
Radical. Belonging to or proceeding from the root, or from the base of the stem.
Radicle. That part of the embryo below the cotyledons, its stem-portion and the primal internode, developing the root from its lower extremity.
Radiculose. Bearing rootlets or rhizoids.
Rameal. Belonging to a branch.
Ramose. Branching.
Ramulose. Bearing branchlets.
Ray. One of the radiating branches of an umbel; the marginal flowers, as distinct from the disk, of a compound flower, umbel, etc.
Receptacle. A more or less expanded or produced surface forming a common support for a cluster of organs (in a flower) or a cluster of flowers (in a head), etc.
Reclinate, Reclining. With an erect or ascending base, the upper part recurved and trailing.
Rectangular. Of an oblong right-angled figure.
Recurved. Curved backward or downward.
Reflexed. Bent abruptly down or backward.
Refracted. Reflexed from the base.
Regular. Symmetrical in form; uniform in shape or structure.

Reniform. Kidney-shaped; deeply cordate with the breadth exceeding the height.
Repand. With the margin slightly sinuate or wavy.
Replum. A frame-like placenta left by the falling away of the valves, as in Cruciferae, some Papaveraceae, etc.
Reticulated. With markings or veinings resembling network.
Retrorse. Turned back or downward.
Retuse. With a shallow or obscure notch at the rounded apex.
Revolute. With the margins or apex rolled backward.
Rhachis. The axis of a spike or of a compound leaf or frond.
Rhaphe. The adnate funiculus of an ovule or seed, connecting the hilum with the chalaza.
Rhaphides. Crystals, usually needle-shaped and clustered, within the cells of plants.
Rhizines, or *Rhizoids.* The peculiar root-hairs of Mosses, Lichens, etc.
Rhizomatous. Producing rhizomes or of the character of a rhizome.
Rhizome, or *Rootstock.* A somewhat horizontal underground rooting stem, producing a stem, leaves or flower-stalk at its apex or nodes, often short or tuberous.
Rhombic. Obliquely four-sided.
Rhomboidal. Somewhat rhombic in outline.
Rib. A principal and prominent nerve of a leaf.
Ribbed. Furnished with prominent nerves.
Ringent. Gaping, applied to a labiate corolla with open throat.
Root. That part of a plant growing underground and supplying it with nourishment.
Rootlet. A very slender root or branch of a root.
Rootstock. See *Rhizome.*
Rostellate. Diminutive of *Rostrate*; having a small beak.
Rostrate. Beaked; bearing a slender terminal process.
Rosulate. Collected in a rosette.
Rotate. Wheel-shaped; of a corolla, spreading abruptly from near the base and nearly flat.
Rotund. Rounded in outline.
Rough. Not smooth to the touch; scabrous.
Rudiment. A partially developed and imperfect organ.
Rudimentary. In an imperfectly developed condition.
Rufous. Reddish or brownish red.
Rugose. Wrinkled; ridged.
Ruminated. Penetrated by irregular channels, as a nutmeg.
Runcinate. Deeply toothed or incisely lobed, with the segments directed backward.
Runner. A very slender prostrate branch (stolon), rooting and developing a new plant at the nodes or tip, as in the strawberry.

Saccate. Sac-shaped; furnished with a sac or pouch-like cavity.
Sagittate. Shaped like an arrow-head; triangular with basal lobes prolonged downward.
Salver-shaped. Narrowly tubular with an abruptly expanded flattened limb.
Samara. An indehiscent membranously winged fruit, as in the Ash and Maple.
Sarocarp. The succulent part of a fleshy fruit.
Sarmentose. Producing long runners.
Scabrous. Rough to the touch with minute rigid points.
Scales. Usually variously modified bracts or leaves, thin and scarious, or coricaceous, fleshy, foliaceous, or woody, often imbricated.
Scandent. Climbing.
Scape. A naked peduncle rising from the ground.
Scapigerous. Producing scapes.
Scar. A mark of separation left upon a surface, as upon a stem by the fall of a leaf.
Scarious. Thin, dry and membranaceous, not green.
Scobiform. Having the appearance of sawdust.
Scorpioid. Incurved like the tail of a scorpion, applied to a unilateral circinately coiled inflorescence, unrolling as the flowers expand.
Scrobiculate. Marked by minute depressions.

Scurf. Small bran-like scales on the epidermis.
Scutelliform. Platter-shaped, with a distinct and raised margin.
Scymetar-shaped. Curved and somewhat flattened triquetrous, thick upon the straighter side, the convex edge thin.
Secund. Turned in one direction, as the leaves or flowers upon a stem.
Seed. The ripened ovule, consisting of the embryo with its proper envelopes.
Segment. One of the parts of a leaf or other organ that is cut or divided; more general than *Lobe.*
Sepal. A leaf or division of a calyx.
Sepaloid. Resembling a sepal.
Septate. Divided by partitions or *septa.*
Septicidal. Dehiscing through the dissepiments and between the cells, or through the lines of junction of the carpels.
Septiferous. Bearing the partitions after dehiscence.
Septifragal. Breaking away from the partitions on dehiscence; terms applied to the valves of a loculicidal capsule.
Septum. Any kind of partition dividing a cavity.
Sericeous. Silky; covered with soft straight appressed hairs.
Series. A row, circle, or rank.
Serotinous. Produced late in the season.
Serrate. Having teeth directed forward, like the teeth of a saw.
Serratures. Teeth like those of a saw.
Serrulate. Finely serrate.
Sessile. Attached immediately to the point of support without footstalk.
Seta. A bristle.
Setaceous. Bristle-like.
Setigerous. Bristle-bearing.
Setose. Beset with bristles.
Sheath. A tubular envelope, investing a stem.
Sheathing. Enfolding like a sheath.
Shield-shaped. Flattened and rounded or polygonal, and borne by a stalk attached to the under surface.
Shrub. A plant woody throughout, of less size than a tree.
Shrubby. Having the character of a shrub.
Sigmoid. Doubly curved, like the letter S, or the Greek *sigma,* Σ.
Silicle. A short cruciferous pod, not many times longer than wide.
Silique. The usually elongated pod in Cruciferae, having two valves separating from two parietal placentae.
Silky. See *Sericeous.*
Simple. Of one piece; not compound.
Sinistrorse. Turned to the left, as seen from the outside; but often used in the opposite sense.
Sinuate. With a strongly wavy margin.
Sinuous. Flexuose: curving back and forth.
Sinus. A depression, either angular or rounded, separating lobes or segments.
Smooth. Not rough; sometimes used as equivalent to glabrous.
Sorus, pl. *Sori.* In ferns, a cluster of sporangia.
Spadix. A spike with usually a thickened fleshy rhachis and subtended by a spathe.
Span. The distance between the extremities of the thumb and little finger when extended; about 18 cm.
Sparse. Thinly scattered.
Spathaceous. Bearing or resembling a spathe.
Spathe. One or more clasping and often sheathing bracts inclosing a flower cluster or inflorescence and mostly colored.
Spatulate. Narrowly attenuate downward from an abruptly rounded summit.
Species. A group of things of the same kind, having essentially the same characters.
Specific. That which relates to or defines a species.
Spicate. In spikes or resembling a spike.
Spike. Resembling a raceme but the flowers sessile or very nearly so.
Spikelet. A secondary spike; in grasses, the flowers subtended by a common pair of glumes.
Spindle-shaped. See *Fusiform.*
Spine. A sharp woody or rigid outgrowth from the stem, a modification of a branch, leaf or stipule.

Spinescent. Ending in a spine or rigid point.
Spinose, Spiny. Furnished with or resembling spines.
Spinulose. Having diminutive spines.
Spiricles. The microscopic spiral cells within the hairs upon the seeds or akenes of some plants (as Collomia), which are discharged and uncoil when wetted.
Sporangium. In the higher cryptogams, the case which contains the spores.
Spores. In cryptogams, the minute bodies which are the result of fructification and which correspond to some extent to the seeds of phaenogams, though without embryo and reproducing the plant only indirectly.
Spur. A usually slender tubular process from some part of a flower, often nectariferous.
Squamose. Furnished with scales.
Squarrose. Roughened and jagged with projections spreading every way, as by the divaricately spreading ends of crowded leaves or bracts.
Squarrulose. Diminutive of the last.
Stamen. The pollen-bearing organ of the flower, consisting of an anther usually supported upon a stalk or filament.
Stamineal. Relating to or consisting of the stamens.
Staminiferous. Stamen-bearing.
Staminodium. A sterile stamen or something taking the place of a stamen.
Standard. The broad upper petal of a papilionaceous flower.
Stellate. Star-shaped; radiating in fine lines from a centre, like the rays of an asterisk.
Stem. The main axis of a plant.
Stemless. Without manifest stem above ground.
Sterile. Barren; not capable of producing seed; a sterile stamen is one not producing pollen.
Stigma. That portion of the pistil without epidermis through which the pollen-tubes effect entrance to the ovules, very variable in shape and position.
Stigmatic. Belonging or relating to the stigma.
Stings. Stinging hairs, seated upon a gland which secretes an acrid liquid.
Stipe. The footstalk of a pistil raising it above the receptacle; in ferns, the naked stalk of the frond.
Stipitate. Borne upon a stipe.
Stipular. Belonging to stipules.
Stipulate. Possessing stipules.
Stipule. An appendage to the base of a petiole, very various in form and character.
Stock. A caudex or rhizome; the persistent base of an herbaceous perennial.
Stolon. A horizontal prostrate offshoot from the base of a plant.
Stoloniferous. Bearing or propagating by stolons.
Stoma, pl. *Stomata.* Microscopic openings or "breathing-pores" in the epidermis of leaves, etc., allowing interchange between the outer air and that within the leaf.
Stomatose. Having stomata.
Stone. The hard endocarp or *putamen* of a drupe.
Stramineous. Straw-like or of a straw-color.
Strap-shaped. See *Ligulate.*
Striate. Marked with fine longitudinal lines or furrows.
Strict. Upright and very straight.
Strigillose. Minutely strigose.
Strigose. Beset with short straight stiff and appressed sharp-pointed hairs.
Strobile. An inflorescence formed of imbricated scales, as in the Hop and the Coniferae.
Strophiole. An appendage at the point of attachment of some seeds.
Struma. In mosses, a wen-like unsymmetrical thickening of the pedicel at the base of the capsule.
Style. That portion of the pistil between the ovary proper and the stigma, usually attenuated, often wanting.
Styliform. Style-shaped.
Stylopodium. A cushion-like expansion at the base of the style in Umbelliferae.
Sub-. In composition, somewhat or slightly.

Submerged. Growing under water.
Subtended. Supported or surrounded, as a pedicel by a bract, or a flower-cluster by an involucre; fulcrate.
Subulate. Awl-shaped.
Succubous. Imbricated downward, the apex of each leaf covered by the base of the one above.
Succulent. Fleshy and juicy.
Sucker. A shoot from the underground base of a stem, or from underground roots or rhizomes.
Suffrutescent. Somewhat or slightly shrubby; woody at base.
Suffruticose. Low and shrubby.
Sulcate. Grooved or furrowed.
Superior. Growing above; a superior ovary is one wholly above and free from the calyx; in a lateral flower, nearest to the axis.
Surculose. Producing suckers.
Suspended. Hanging directly downward; hanging from the apex of a cell.
Suture. A line of union, or of dehiscence.
Sword-shaped. A blade with two thin acute edges, as in Iris.
Symmetrical. Regular in shape or in the number of its parts.
Syncarpous. Composed of two or more united carpels.
Synonym. A superseded or unused name.

Tail. Any long and slender terminal prolongation.
Teeth. Small marginal or terminal lobes of any kind.
Tendril. A thread-like production from an axil, the extremity of a leaf, or elsewhere, capable of coiling and used for climbing.
Terete. Cylindrical or nearly so; not angled nor channelled.
Ternate. In threes; with three divisions.
Ternate-pinnate. Ternate with the divisions pinnate.
Tessellated. Chequered; like mosaic or chequerwork.
Testa. The outer seed- coat.
Tetradynamous. With four long and two shorter stamens; applied to the Cruciferae.
Tetragonal. Four-angled.
Tetramerous. Of a flower, having its parts in fours.
Tetrandrous. With four stamens.
Thalloid. Resembling a thallus.
Thallus. In cryptogams, a cellular expansion taking the place of stem and foliage, very various in form.
Thorn. See *Spine.*
Throat. The orifice of a gamopetalous corolla or calyx; the portion of the corolla immediately below the limb or between the limb and the tube.
Thyrse. A contracted or close ovate panicle.
Tissue. The various forms of cellular and vascular structure of which a plant is composed.
Tomentose. Pubescent with matted wool.
Tomentum. Dense matted woolly pubescence.
Tongue-shaped. Oblong and somewhat fleshy, nearly flat, and rounded at the apex.
Toothed. Provided with teeth.
Top-shaped. Inverted broad-conical.
Torose. Swelling interruptedly; cylindrical, or somewhat so, with constrictions at intervals.
Tortuous. Twisted.
Torulose. Slightly torose.
Torus. The receptacle of a flower; the apex of the flower-stalk, more or less modified to support the parts of the flower.
Transverse. Across, from side to side.
Tree. A woody branching plant, with erect trunk, ten feet high or more.
Triandrous. With three stamens.
Triangular. Three-angled.
Trichotomous. Branching by threes.
Trifid. Three-cleft.
Trifoliate. Three-leaved.
Trifoliolate. Having three leaflets.
Trimerous. Having its parts in threes.
Tripinnate. Three times pinnate.
Triquetrous. Of a stem, etc., triangular with the sides somewhat concave or channelled.
Triquinate. Ternate with the divisions again divided into five.
Tristychous. In three vertical ranks.
Triternate. Three times ternate.
Trumpet-shaped. Tubular with a dilated orifice.

Truncate. Ending abruptly as if cut off transversely.
Trunk. A main stem.
Tube. Any elongated hollow body or part of an organ.
Tuber. A thickened rhizome, with scattered buds or eyes.
Tubercle. A small projection or pimple; a small tuber or a tuberous root.
Tuberculate. Covered with small rounded prominences or knobs.
Tuberiferous. Bearing tubers.
Tuberous. Resembling a tuber.
Tubular. Tube-shaped.
Tubuliflorous. When the flowers of a head have only tubular corollas.
Tunicate. Having concentric coats, as an onion.
Turbinate. Top-shaped.
Twining. Ascending by winding about a support.
Type. The ideal pattern or form.
Typical. That which corresponds to or represents the type. A typical species is one upon which the generic character was founded, or one which conforms most closely to the general characters of the genus, deviations from which from the basis for subgenera, etc. So the typical form of a species is that upon which the specific character is based, as distinguished from all varieties, sports, etc.

Umbel. An umbrella-shaped inflorescence, the pedicels radiating from the summit of the common peduncle.
Umbellate. Bearing or growing in umbels.
Umbellet. A small secondary umbel upon the ray of the primary.
Umbelliferous. Bearing umbels.
Umbellulate. Bearing umbellets.
Umbilicate. Pitted in the centre, navel-like.
Umbonate. Bossed; bearing a stout projection in the centre, like the boss of a shield.
Umbraculiform. Having the form of an umbrella.
Unarmed. Without prickles, spines, or the like.
Uncinate. Hooked at the extremity.
Undulate. Wavy, alternately raised above and depressed below the general plane.
Undershrub. A very low shrub.
Unequal. Not equal; unsymmetrical; *unequally pinnate*, with an odd terminal leaflet.
Unguiculate. Of a petal, narrowed below into a claw or petiole-like base.
Unilateral. One-sided.
Unilocular. One-celled.
Uniovulate. Having a single ovule.
Uniserial. In one horizontal row or series.
Unisexual. Of one sex; of flowers having stamens only or pistils only.
Urceolate. Cylindrical or ovoid, but contracted at or below the open orifice, like an urn or pitcher.
Utricle. A small bladdery usually one-seeded pericarp, indehiscent or bursting irregularly or circumscissile; any small bladder-like organ, or sometimes applied to forms of tissue-cells.
Utricular. Consisting of or belonging to utricles.

Vagina. A sheath.
Vaginate. Sheathed.
Vaginule. A diminutive sheath.
Valleculae. The grooves between the ribs of the fruit in Umbelliferae.
Valvate. Opening by valves, as a capsule; meeting by the edges, without overlapping, as sepals, etc., in aestivation.
Valve. The several parts of a dehiscent pericarp; the door-like lid by which anthers sometimes open.
Variegated. Irregularly colored.
Variety. The principal subdivision of a species, differing from the type in certain constant characters of subordinate value.
Vascular. Relating to or composed of elongated tubular cells (vessels, ducts), as distinguished from *cellular*.
Veined. Furnished with veins.
Veinless. Destitute of evident veins.
Veins. Bundles of woody tissue traversing a leaf or other flat surface, and forming its framework, especially those which branch (as distinct from *nerves*).

Veinlet. A small subdivision of a vein.
Velutinous. Velvety; covered with a dense soft fine pubescence.
Venation. The mode of veining.
Ventral. Belonging to the anterior or inner face of a carpel, etc.; the opposite of *Dorsal.*
Ventricose. Swelling unequally or inflated on one side.
Venulose. Abounding with veinlets.
Vermicular. Worm-shaped.
Vernal. Appearing in spring.
Vernicose. Appearing as if varnished.
Verrucose. Covered with wart-like elevations.
Versatile. Swinging; turning freely on its support.
Vertex. The apex of an organ.
Vertical. Upright; perpendicular to the plane of the horizon; longitudinal.
Vertical. A whorl.
Verticillate. Arranged in whorls.
Vesicle. A small bladder or air-cavity.
Vesicular. Composed of vesicles.
Vessels. Elongated tubular cells, of various kinds, forming the vascular tissue of plants.
Vexillum. The standard or large upper palet of a papilionaceous corolla.
Villose, Villous. Bearing long and soft straight or straightish hairs.
Vimineous. Bearing long and flexible twigs.
Vine. A trailing, climbing or twining stem.
Virgate. Like a wand or rod, slender, straight and erect.
Viscid, Viscous. Glutinous, sticky.
Vittate. Bearing vittæ.
Vittæ. The longitudinal oil-tubes in the pericarp of most Umbelliferæ.
Viviparous. Propagating by buds or bulblets instead of by seeds, or with the seeds germinating while still on the plant.

Wavy. See *Undulate.*
Waxy. Resembling bees-wax in appearance or consistence.
Wedge-shaped. See *Cuneate.*
Wheel-shaped. See *Rotate.*
Whorl. An arrangement of leaves, flowers, etc., in a circle about the stem or axis.
Wing. Any membranous or thin expansion or appendage; the lateral petal of a papilionaceous flower.
Wood. The hard firm part of a stem, etc., composed mainly of wood-cells (fibro-vascular tissue).
Woolly. Clothed with long and twisted or matted hairs.

Appendix VII.

Alphabetical List of Arabian Names of Plants.

abad = Launaea Cassiana (Jaub. and Spach) Muschler 1058; = Launea glomerata 1061.

abad.: mai (Klunzinger) = Moringa aptera Gaertn. 445.

abad.: makkir = Polycarpaea repens (Forsk.) Aschers.-Schweinf. 350.

abad rikhâq = Robbairea prostrata (Del.) Boiss. 347.

'abd-el-lâwry = Cucumis Melo L. var. Chate (L.) Naud. 937.

'abeyse = Silene linearis Decsne 339.

abl = Tamarix articulata Vahl 649; (Schweinf.) = T. nilotica (Ehrenbg.) Bunge 648.

abû-'ain-safrâ (G. Roth) = Pulicaria arabica Cass. 986.

abû hosâba (Schweinfurth) = Cressa cretica L. 760.

abû-makhy = Schismus arabicus Nees. 134.

abû mushfah (Ascherson) = Erodium chium (L.) Willd.; = E. ciconium L'Hérit.; = E. gruinum L'Hérit. 558; = E. triangulare (Forsk.) Muschler 559.

abu naga (Del.) = Diplachne fusca (L.) Beauv. 113.

abun-nôm (Forskål) = Papaver hybridum L. = P. somniferum L. 378.

abu-qarn (Ascherson) = Gynandropsis pentaphylla DC. 388.

aburukba = Panicum colonum L. 53.

aburukbe = Panicum turgidum Forsk. 57.

abu'r-rukbeh = Aristida pungens Dsf. 80.

abu-rukbu (Forsk.) = Diplachne fusca (L.) Beauv. 113.

abur-rukeyb (Ascherson) = Cichorium endivia L. 1047.

abu-saq = Salicornia fruticosa L. 287.

abu stina (Forsk.) = Hordeum murinum L. 160.

abû uqqeyl (Ascherson) = Erodium triangulare (Forsk.) Muschler 558.

'adam (Schweinf.) = Ephedra alata Decsne 8.

adba (Schweinf.) = Oxalis corniculata L. 564.

'adbe (Forsk.) = Reaumuria hirtella Jaub. and Spach 651.

'adêr (Schweinfurth) = Artemisia monosperma Del. 1012.

'âdehr = Artemisia monosperma Del. 1012.

'ades-el-mâ = Lemna polyrrhiza L. 195.

'adeyd (Klunzinger) = Launaea Cassiana (Jaub. and Spach) Muschler 1058.

'adeyn-fâr = Parietaria alsinifolia Del. 252.

'adîrr (Ascherson) = Artemisia monosperma Del. 1012.

adjdjûr (Schweinfurth) = Cyperus difformis L. 170.

'adjerâm (Ehrenberg, Schweinfurth) = Anabasis articulata (Forsk.) Moq. Tand. 301.

adjirâm-el-holûs (Ascherson) = Limoniastrum monopetalum Boiss. 727.

'adjûr = Cucumis Melo L. var. Chate (L.) Naud. 937.

adreys (Schweinf.) = Medicago Aschersoniana Urban 491.

'ads = Lens esculenta Moench 544.

'adu (Ehrenberg) = Halopeplis amplexicaulis (Vahl) 284.

af = Phoenix dactylifera L. (Spathe) 187.

'afeyn (Klunzinger) = Cleome droserifolia Del. 386.

'afeyn (Ascherson, Schweinfurth) = Heliotropium europaeum L. 785.

'afeyn = Heliotropium europaeum L. var. tenuiflorum Boiss. 786.

'afin (Ascherson) = Eruca sativa Lam. 416.

afrash = Cotula cinerea Del. 1015; = Pulicaria crispa Benth. and Hook. 988.

'agerâm = Anabasis articulata (Forsk.) Moq. Tand. 301.

'aggeyr = Cyperus difformis L. 170.

'aggîr = Cyperus difformis L. 170.

'aggûr = Cucumis Melo L. var. Chate (L.) Naud. 937.

ahna (Schweinf.) = Centaurea Lippii L. 1034.

ahne (Schweinfurth) = Silene linearis Decsne. 339.

aïn-bâggara = Hibiscus Trionum L. 634.

'aïn-el-bint = Silene colorata Poir. var. Oliveriana Rohrb. 338.

'aïn-el-djemel (Roth) = Anagallis arvensis L. 720.

'aïn-el-qutt = Anthemis retusa Del. 1004; = Phalaris minor Retz. var. gracilis (Parl.) Aschers.-Schweinf. 71.

'aïn-el-qutt (Ascherson) = Calendula aegyptiaca Pers. 1019; = Matricaria Chamomilla L. 1010.

'aïn-el-qutt (G. Roth) = Veronica anagalloides Guss. 877.

'aïn-esh-shems = Calendula aegyptiaca Pers. 1019.

'aïn-es-sofrâ (Schweinfurth) = Calendula aegyptiaca Pers. 1019.

aïn sîle = Aristida lanata Forsk. 78.

'aisalân = Pancratium Sickenbergerii Aschers. and Schweinf. 234.

'aïsalân (Schweinf.) = Hyacinthus flexuosus (Boiss.) Baker 225.

akhreyt = Salsola vermiculata L. var. villosa (Del.) Moq. Tand. 299.

'akrish (Ascherson) = Aeluropus repens (Desf.) Parl. 130.

akûl-bishûm = Ottelia alismoides (L.) Pers. 30.

albristi = Sporobolus spicatus (Vahl) Knuth 86.

alegiân (Schweinf.) = Achillea fragrantissima (Forsk.) Sch. Bip. 1007.

'allêyq (Schweinfurth) = Cynanchum acutum L. 747.

ambarfe = Eragrostis bipinnatus (L.) Muschler 128.

ammishy (Schweinfurth) = Malabaila suaveslens Coss. 709.

amrûr = Centaurea pallescens Del. 1038.

amyân (Nub.) = Tephrosia apollinea (Del.) DC. 513.

'aneb = Vitis vinifera L. 620.

'aneb-ed-dîb = Cissus ibuensis Hook. fil. 620; = Nitraria retusa (Forsk.)

Aschers. [Fruits.] 575; = Solanum nigrum L. 842.

'aneb-ed-dîb (Ascherson) = Lycium europaeum L. 849.

anneysh (Damietta) = Saccharum biflorum Forsk. 40.

antalîye (Ascherson) = Silene rubella L. 338.

aqûd (Ascherson) = Lycium europaeum L. 849.

'aqûl = Alhagi Maurorum Medic. 537; = Erodium triangulare (Forsk.) Muschler 558; = Fagonia Bruguieri DC. 581 = F. latifolia Del. 580; = F. mollis Del. 582 = Sida spinosa L. 630.

'aqûl (Muschler) = Prosopis Stephaniana (Willd.) Spr. 457.

'aqûl-el-ghazâl (Ascherson) = Fagonia arabica L. 583.

'ar'a (Klunzinger, Schweinfurth) = Aerva tomentosa Forsk. 312.

'arâd = Salsola tetrandra Forsk. 297.

arâk (generally) = Salvadora persica Garcin. 729.

arândj (Schweinfurth) = Citrullus vulgaris Schrad. var. colocynthoides Schweinf. 938.

arareg (Delile) = Gynandropsis pentaphylla DC. 388.

ara'ûl = Chrysanthemum Parthenium Bernh. 1009.

arbayân (Schweinfurth) = Anthemis melampodina Del. 1003.

arembeh (Schweinf.) = Salsola Volkensii Schweinf. and Aschers. 296.

'äreym (Forsk.) = Kochia muricata (L.) Schrad. 283.

'areym (Schweinfurth) = Salvia lanigera Poir. 827.

argel = Solenostemma Argel (Del.) Hayne 749.

argûn = Phoenix dactylifera L. (Inflorescence of male flowers) 187.

arîdeh = Samolus Valerandi L. 721.

'arjel = Asclepias curassavica L. 754; = A. fruticosa L. 753.

arta (generally) = Calligonum comosum L'Hérit. 257.

aryal (generally) = Statice pruinosa L. 725.

asaghân (Schweinfurth) = Ballote damascena Boiss. 832.

'asal (Forsk.) = Suaeda monoica Forsk. 288.

ashmuny (generally) = Gossypium barbadense L. 637.

askîl = Urginea maritima (L.) Baker (bulb.) 222.

'atar = Silene succulenta Forsk. 340.

athaman = Panicum turgidum Forsk. 57.

athena = Chenopodium murale L. 273.

'athirr = Noaea mucronata (Forsk.) Ascherson and Schweinf. 300.

athl = Tamarix articulata Vahl 649.

attân (Klunzinger, Schweinf.) = Arnebia hispidissima (Lehm.) DC. 801.

attâny (Schweinf.) = Fagonia Brugnieri DC. 581.

ausedj = Lycium arabicum Schweinf. 849.

'ausedj (Delile) = Rhus Oxyacantha Cav. 611.

'aweynet-el-muslemân (Schweinf.) = Arnebia linearifolia DC. 802.

ayakabuh (Del.) = Delphinium Ajacis L. 371.

azmûr = Olea europaea L. 730.

babâs = Carica Papaya L. 662.

babûneg = Achillea fragrantissima (Forsk.) Sch. Bip. 1007.

babunngi = Matricaria Chamomilla L. 1010.

babûn-nguy = Matricaria Chamomilla L. 1010.

ba'cytherân = Artemisia judaica L. 1013.

badhinjân-teriâqi = Xanthium spinosum L. 993.

badindjân-el-qûta = Solanum Lycopersicum L. 843.

ba'eytherân = Achillea Santolina L.; (generally) = Achillea fragrantissima (Forsk.) Sch. Bip. 1007.

bahsanân (Klunz.) = Zygophyllum album L. 578.

bakher (Schweinf.) = Vicia calcarata Desf. 542.

bakhrâ (Forskål) = Vicia lutea L. 540.

bakhragan = Avena fatua L. 99.

bakhringân-el-qhûl (Ascherson) = Bromus japonicus Thunb. var. aegyptiacus (Tausch) Aschers.-Schweinf. — Muschler 147.

bakhrû (Barb.) = Vicia sativa L. 540.

bakh tery = Erodium triangulare (Forsk.) Muschler 558.

bakkef = Cardiospermum Halicacabum L. 614.

baksheyft (Schweinf.) = Dinebra retroflexa (Vahl) Panzer 106.

balah harrâre (G. Roth) = Balanites aegyptiaca Delile 587.

bân (Schweinfurth) = Moringa aptera Gaertn. 445.

bân = Salix tetrasperma Roxb. 243.

bandûra = Solanum Lycopersicum L. 843.

baqaq (Ascherson) = Heleochloa schoenoides (L.) Host. 85.

baqdûnis = Petroselinum sativum Hoff. 696.

baqôq = Heleochloa schoenoides (L.) Host., = H. alopecuroides (Schrad.) Host. 85.

bardaqûsh = Origanum Majorana L. 821.

bariûf = Conyza Dioscorides Desf. 967.

barnûq (Figari) = Cistanche lutea Hoffmg. and Link 887.

basal = Allium Cepa L. 215.

basal'ansal (Ascherson) = Asphodelus tenuifolius Cav. var. micranthus Boiss. 229.

basal-el-'afrit (Ascherson) = Allium ampeloprasum L. 213.

basal-el-fâr (Delile) = Urginea maritima (L.) Baker 222.

basal-el-hanakh (Ascherson) = Ornithogalum tenuifolium Guss. var. trichophyllum (Boiss. and Heldr.) Boiss. 227.

basal-el-'onseyl = Urginea maritima (L.) Baker 222.

basal-esh-sheytân (Schweinf.) = Asphodelus tenuifolius Cav. var. micranthus Boiss. 229.

basal iblîs (Mohammed) = Asphodelus tenuifolius Cav. var. micranthus Boiss. 229.

basal-'onsel (Ascherson) = Asphodelus microcarpus Viv. 229.

bashar-el-ard = Cistanche lutea Hoffmg. and Link 887.

basheruk (Ascherson) = Avena fatua L. 99.

basilla = Pisum sativum L. 548.

bast (generally) = Cannabis sativa L. 249.

basûma = Pteranthus dichotomus Forsk. 356.

batanât = Zygophyllum album L. 578.

batâta = Ipomoea Batatas Lam. 771.

batâta (?) = Ipomoea hederacea Jacq. 772.

battîkh = Citrullus vulgaris Schrad. 938.

battîkh-el-malâïka (Forsk.) = Crozophora plicata (Vahl) A. Juss. var. prostrata (Dalz.) Muell. Arg. 593.

batn-el-hayne = Pancratium Sickenbergerii Aschers. and Schweinf. 284.

bawâl = Salicornia fruticosa L. 287; = Zygophyllum coccineum L. 578; (generally) = Z. album 578.

bawâl (Schweinf.) = Cirsium syriacum (L.) Gaertn. 1027.

befât = Asphodelus microcarpus Viv. 229.

beheymey (Schweinf.) = Odontospermum graveolens Sch. Bip. 991.

bekâr = Panicum turgidum Forsk. 57.

belah = Phoenix dactylifera L. (The ripe fruit) 187.

belbel = Zygophyllum coccineum L. var. berenicense (Schweinf.) Muschler 578.

belbel (Aschers.-Muschler) = Anabasis articulata (Forsk.) Moq. Tand. 301.

belbel (Ehrenberg) = Haloxylon articulatum Bunge 294.

belbel (generally) Zygophyllum album L. 578; = Z. coccineum L. 578.

bel-bûkh (Ascherson) = Hyacinthus sessiliflorus Viv. 225.

beledy = Pancratium aegyptiacum M. Roemer 234.

bellash ma' îzs (Muschler) = Senecio aegyptius L. 1017.

belleh = Elaeagnus hortensis M. Bieb. var. orientalis Schlechtd. 666.

benefshig = Viola odorata L. 659.

benefshig frengy (Ascherson) = Duranta Plumierii Jacq. 811.

beng = Hyoscyamus albus L. 853; = H. albus L. var. desertorum Aschers. 854.

beni-esh-shâm = Lygeum spartum L. 69.

bêqem = Reseda luteola L. 442.

berberân = Cleome brachycarpa Vahl 387.

bereyt = Dipcadi erythraeum Webb. et Berth. 220.

berkhemy (Schimper) = Plantago cylindrica Forsk. 907.

berqân = Centaurea scoparia DC. 1036.

berîm-shâm = Lygeum spartum L. 69.

bersîm (generally) = Trifolium alexandrinum L. 497.

bersîm hedjâz (generally) = Medicago sativa (L.) Döll. 486.

berzun (Forskål) = Trifolium alexandrinum L. 497.

beshâft = Panicum colonum L. 53; = P. colonum L. var. arabicum (Nees) Sickenberg 53.

besîk = Urospermum picroides F. W. Schmidt. 1050.

besikh = Sonchus oleraceus L. 1062.

besille = Pisum sativum L. 548.

besille (Klunzinger) = Zilla spinosa (Forsk.) Prantl. 431.

besillet iblîs (Ascherson) = Vicia sativa L. 540.

beyâd (Forsk.) = Convolvulus lanatus Vahl 764.

beydân (Schweinfurth) = Mangifera indica L. 612.

beyd-el-ard (Ascherson) = Crepis bulbosa Tausch 1067.

beyd-el-djemel (Ascherson) = Astragalus tribuloides Del. 516.

beyd-el-gemel = Astragalus prolixus Sieb. 516.

beyd-el-gutt = Astragalus Sieberi DC. 524.

beyd-el-'oshar (the fruit) = Calotropis procera (Ait.) R. Br. 751.

beydingân = Solanum Melongena L. 844.

beydingân aswad (Ehrenberg) = Solanum Melongena L. 844.

beydingân tômaten (Del.) = Solanum Lycopersicum L. 843.

beylâsân = Momordica balsamina L. 940; = Sambucus nigra L. 925.

beysum (Ascherson) = Senecio aegyptius L. 1017.

bezâz-el-adhrâ (Muschler) = Helichrysum conglobatum (Viv.) Steud. 981.

bihme = Stipa parviflora Desf. 82; = Stipa tortilis Dsf. 82.
bileyha (Ascherson) = Lippia nodiflora Rich. 809.
bint-el-hosn = Ipomoea palmata Forsk. 771.
birdy (Wilkins., Schweinf.) = Typha angustata Bory et Chaub. 10.
birshemân = Senecio coronopifolius Desf. 1017.
bishna = Eleusine coracana (L.) Gaertn. 108.
bishrîn (G. Roth) = Achillea Santolina L. 1007.
bislîs (G. Roth) = Erodium hirtum (Forsk.) Willd. 560.
bisr-el-qatûna = Plantago phaeostoma Boiss. and Heldr. 913.
bitm = Pistacia Khinjuk Stocks var. glaberrima Schweinf. 611.
bizz-kelbe (Roth) = Zygophyllum album L. 578.
bizz kelbeh (Roth) = Zygophyllum coccineum L. 578.
blîha (generally) = Reseda luteola L. 442.
blimish = Nonnea Viviannii DC. 797.
blinîsh (Ascherson) = Poterium verrucosum Ehrenberg 453.
borwâq (generally) = Asphodelus tenuifolius Cav. var. micranthus Boiss. 229.
breheyma (Schimp.) = Convolvulus lanatus Vahl. 764.
bu-dueys = Imperata cylindrica (L.) P. Beauv. 39.
bu-lefen (Ascherson) = Ifloga spicata Sch. Bip. 973.
burâq (Forsk.) = Asphodelus tenuifolius Cav. var. micranthus Boiss. 229.
burbeyt = Cyperus laevigatus Roemer var. pictus (All.) Roeckeler 166. = C. rotundus L. 173; = Heleocharis palustris (L.) R. Br. 175.
burdy = Typha angustata Bory et Chaub. 10.
burghl = Atriplex leucocladum Boiss. 279.
burqân (Wilkinson, Schweinf.) = Centaurea scoparia DC. 1036.
bûs = Saccharum biflorum Forsk. 40.
bu saq (Delile) = Salicornia fruticosa L. 287.
bûs-el-gesâ'a = Saccharum biflorum Forsk. 40.
buseyl = Muscari comosum (L.) Mill. 223; = Pancratium maritimum L. 235; (generally) = Urginea maritima (L.) Baker 222.
bûs-fârish (Aschers.) = Arundo Donax L. 115.
bûs-fârisy = Saccharum biflorum Forsk. 40.
bûs giddâwi (Rosetta) = Saccharum biflorum Forsk. 40.
bus haggai (Forsk.) = Arundo Donax L. 115.
busseyl = Iris Sisyrinchium L. 237.
bûz haggny = Phragmites communis Trin. var. isiaca (Del.) Cosson 116.
bûz-hâgney (Schweinf.) = Phragmites communis Trin. var. isiaca (Del.) Cosson 116.
buzz-el-kelbeh (Schweinfurth) = Zygophyllum decumbens Delile 577.

cakher = Vicia narbonensis L. 541.

dabbûn (Forsk.) = Anchusa aegyptiaca (L.) Dl. 797.
dablût = Ficus pseudosycomorus Decsne. 247.
dafâra (Schweinfurth) = Heliotropium arbaïnense Fresen. 787.
dafâra = Heliotropium zeylanicum Lam. 783.
dafrâ = Iphïona mucronata (Forsk.) Aschers.-Schweinf. 985.

dafry = Iphiona mucronata (Forsk.) Aschers.-Schweinf. 985.

dahany (Schweinfurth) = Echium longifolium Delile 804.

dahazyr = Indigofera anabaptista Steud. 512; = I. paucifolia Del. 511.

dahmch (Schweinf.) = Erodium arborescens (Desf.) Willd. 561.

dakhayân = Malcolmia aegyptiaca Spreng. 405; = M. aegypt. Spr. var. linearis Coss. 405.

dakhîyân = Lobularia maritima Desv. 421.

damassena = Ambrosia maritima L. 992.

damrân = Agathophora alopecuroides (Del.) Bunge 303.

damrân (Schweinf.) = Salsola tetrandra Forsk. 297.

damrân (Muschler) = Salsola Pachoi Volkens and Aschers. 297.

damsîs = Pulicaria inuloides DC. 988.

dan-el-fâra (Ehrenberg) = Astragalus gyzensis Delile 519.

danûn (Wilkins) = Cistanche lutea Hoffmg. and Link 887.

danûn (Ascherson) = Orobanche crenata Forsk 893.

danûn (Wilkins; Schweinf.) = Orobanche cernua Loefll. 892.

dânûn-el-adirr (Ascherson) = Orobanche cernua Loefl. 892.

dânûn-el-djinn (Ascherson) = Cistanche lutea Hoffmg. and Link 887.

daqan-el-bedan (Schweinf.) = Centaurea eryngioides Lam. 1036.

daqan-esh-sheykh (Klunzinger) = Tribulas macropterus Boiss. 574.

daraqraq = Trigonella hamosa L. 482.

datûra = Datura Stramonium L. 852.

debbâsh (Schweinfurth) = Scorzonera alexandrina Boiss. 1053.

debshe (Forsk) = Scirpus maritimus L. 183.

dehasîr (Schweinfurth) = Taverniera aegyptiaca Boiss. 535.

dehorag (Del.) = Vicia sativa L. 540.

demsîs (generally) = Ambrosia maritima L. 992.

demssissa = Ambrosia maritima L. 992.

denâba (Delile) = Caylusea canescens St-Hil. 438.

denebân = Oligomeris subulata (Del.) Boiss. 443.

denebân (Klunzinger) = Reseda pruinosa Del. 442.

depîs = Astragalus brachyceras Ledeb. 522; = Plantago crassifolia Forsk. 911.

depîs (Ascherson) = Plantago crypsioides Boiss. 911.

deraq (Schweinfurth) = Trigonella laciniata L. 482.

derêssa = Medicago hispida (Gaertn.) Urban 490.

dereyre = Aristida lanata Forsk. 78.

dereyry = Aristida obtusa Del. 76; = A plumosa L. 77.

derrâta (Ehrenberg) = Haplophyllum tuberculatum (Forsk.) Adr. Juss. 585.

deyl-el-qutt = Lygeum spartum L. 69.

dheil-et-ta'leb = Polypogon maritimus Willd. 89.

dhenebûn (Schweinf.) = Oligomeris subulata (Del.) Boiss. 443.

difle = Nerium Oleander L. 738.

dîffre = Panicum colonum L. 53.

diker-el-fûl (Ascherson) = Orobanche crenata Forsk. 893.

dikhreyq (Ascherson) = Vicia calcarata Desf. 542.

diktaê (Schimper) = Lavandula coronopifolia Poir. 818.

dimsîs (Schweinf.) = Conyza aegyptiaca Ait. 967.

dineyb = Panicum Crus galli L. 52; = P. Crus galli L. var. echinatum (Willd.) Boiss. 52.

dirr (Schweinf.) = Noaea mucronata (Forsk.) Aschers. and Schweinf. 300.

dirs-el-'agus (Aschers.) = Emex spinosus A. 258.

dirs-el-kelb (Delile) = Beta vulgaris L. var. maritima (L.) Boiss. 274.

dîs = Cyperus alopecuroides Rottb. 167; = C. rotundus L. 173.

dîs (Ascherson) = Cyperus auricomus Sieb. 170; = C. auricomus Sieb. var. subalatus (Boeckeler) Aschers. and Schweinf. 171.

dis (Aschers.-Muschler) = Typha angustata Bory et Chaub. 10.

dithdâth (Schweinfurth) = Pulicaria crispa Benth. and Hook. 988.

dja'ade = Teucrium leucocladum Boiss. 837; = T. pilosum Aschers-Schweinf. 838.

djazar = Daucus Carota L. 713.

djazar 'afârît (Ascherson) = Heliosciadium nodiflorum (L.) Koch 695.

djelbân (Ascherson) = Vicia peregrina L. 541.

djell (Ehrenberg) = Salsola vermiculata L. var. villosa (Del.) Moq. Tand. 299.

djeneyme (Forsk. Schweinf.) = Plantago ovata Forsk. 909.

djerad (generally) = Gymnocarpus decander Forsk. 355.

djerdîr-el-djebel (Ascherson) = Senecio coronopifolius Desf. 1017.

djerdjîr (Wilkinson) = Senecio coronopifolius Desf. 1017.

djilbân (Ascherson) = Vicia calcarata Desf. 542.

djill (Ehrenberg) = Salsola tetrandra Forsk. 297.

dobbâri (Schweinf.) = Atractylis flava Desf. 1024.

dok = Pennisetum americanum (L.) K. Schum. 64.

dokhn = Andropogon Sorghum Brot. 44; = Panicum miliaceum L. 56.

dordâ (Ascherson) = Reichardia tingintana Roth 1065; = Urospermum picroides F. W. Schmidt 1050.

doreyshey (Forsk.) = Linaria aegyptiaca (L.) Dum. 865

dorreys = Hippocrepis bicontorta Loisl. 532.

dreys (Forsk.) = Tribulus alatus Del. 573.

dukhân = Nicotiana Tabacum L. 855.

dukhân akhdar = Nicotiana rustica L. 857.

dukhân beledy butahugy = Nicotiana rustica L. 857.

dukkhân-belledy (Ascherson) = Nicotiana glauca L. 856.

dûm = Hyphaene thebaica Mart. 189.

du meyry = Cucumis Melo L. 937.

dura = Andropogon Sorghum Brot. 44.

dura-belledi — Andropogon Sorghum Brot. 44.

durreys (Ascherson) = Onobrychis Crista galli Lam. 534.

egdîm (Wilkinson) = Helianthemum cahiricum Delile 655.

el-aswad (Delile) = Cyperus esculentus L. 174.

eleyân = Achillea fragrantissima (Forsk.) Sch. Bip. 1007.

endiwîyey (Schweinfurth) = Cichorium endivia L. 1047.

'enlleyq = Convolvulus althaeoides L. 767.

'ennâb = Zizyphus jujuba Lam. 617.

ergeyta = Helicophyllum crassipes (Boiss.) Schott. 194.

'erin (Wilkins.) = Rhus Oxyacantha Cav. 611.

'ern (Schweinfurth) = Rhamnus disperma Ehrenberg 618; = Rhus Oxyacantha 611.

erseyl = Hyacinthus flexuosus (Boiss.) Baker 225.

es-bânakh = Spinacia glabra Mill. 275.

'eshêb = Lotononis dichotoma (Del.) Boiss. 471; = Medicago ciliaris Willd. 491.

'esheb-ed-dîb = Linaria aegyptiaca (L.) Dum. 865.

'eshûb = Cyperus capitatus Vandelli; = C. conglomeratus Rottb. 168.

es-sogheyyer = Cyperus esculentus L. 174.

eteyr = Glossonema Boveanum Decsne. 744.

ethbâ (Wilkinson) = Scorzonera alexandrina Boiss. 1055.

etîrr (Klunzinger) = Glossonema Boveanum Decsne. 744.

'eukkûb (Klunzinger, Schweinfurth) = Cyperus conglomeratus Rottb. var. effusus (Rottb.) Boiss. 168.

eysh u gibne = Raphanus Raphanistrum L. 437.

faga'â = Astragalus eremophilus Boiss. 519.

faqqûs-el-homâr (Ascherson) = Crozophora tinctoria (L.) A. Juss. var. hierosolymitana Muell. Arg. 593.

fâragh = Prosopis Stephaniana (Willd.) Spr. 457.

fâregh = Prosopis Stephaniana (Willd.) Spr. 457.

fâreq = Tamarix articulata Vahl 649.

fasheysh (Schweinf.) = Gymnocarpus decander Forsk. 355.

fehna (Schweinf.) = Arnebia hispidissima (Lehm.) DC. 801.

felfel tawîl = Euphorbia mauritanica Lam. 603.

feres (Caillaud) = Traganum nudatum Del. 293.

figl = Raphanus sativus L. 437.

figle = Beta vulgaris L. var. maritima (L.) Boiss. 274.

fig-el-gebl (Forskål. Del.) = Emex spinosus L. 258.

figl-el-gemâl = Brassica Tournefortii Gouan 411; = Cakile maritima Scop. 432 = Sisymbrium Irio L. 407.

fileyhe (generally) = Mentha Pulegium L. 820.

filfil ahmar = Capsicum frutescens L. 847.

fisa kelib Zorbe = Urtica pilulifera L. 252.

fiss-el-kelab = Chenopodium murale L. 273.

fiss-el-kelb (Schweinf.-Muschler) = Amarantus graecizans L. 309.

fiss-el-kelb = Amarantus graecizans L. var. angustifolia (Marsh. Bieb.) Aschers. and Schweinf. 309.

fiss-el-ketâb (Del.) = Chenopodium album L. 272.

fiss-el-kîlâb (Forskål) = Amarantus graecizans L. 309.

fisseyh = Chenopodium murale L. 273.

fleyha (generally) = Mentha Pulegium L. 820.

foqeyha (Ascherson) = Campanula sulphurea Boiss. 945.

foqqêysh (Ascherson) = Withania somnifera Dun. 846.

forgâ = Jussiaea repens L. 680.

forqeyh = Sphaeranthus suaveolens DC. 971.

forreysh (Delile) = Heliotropium luteum Poir. 786.

frakh-omm-'aly (Forsk.) = Anthemis melampodina Del. 1003.

frakh-ommaly = Senecio coronopifolius Desf. 1017.

frâsiyûn (Forsk., Delile) = Marrubium Alysson L. 830.

freykâl = Jussiaea repens L. 680.

freykh (Ascherson) = Atractylis flava Desf. 1024.
fudjeyla (Ascherson) = Moricandia nitens Durand and Batt. 415.
fuggê' (Schweinfurth) = Eryngium campestre L. 689 = E. creticum Lam. 690.
fugeyla = Brassica Tournefortii Gouan 411; = Cakile maritima Scop. var. aegyptiaca Coss. 432.
fûl-el-'arab (Ascherson) = Vaccaria segetalis Garcke 331.
fulfeyleh (Ascherson) = Euphorbia mauritanica Lam. 603.
fûl rûmy (Forsk.) = Vicia sativa L. 540.
fûl sudâny = Arachis hypogaea L. 538.
fushfâsh = Statice pruinosa L. 725.
fuwwa = Rubia tinctorum L. 919.

gaba = Aristida plumosa L. 77.
gabbes = Amarantus viridis L. 308.
gaddîm = Helianthemum Sancti Antonii Schweinfurth 655.
gaddûp = Lotus arabicus L. 506.
galâîl (Delile) = Sonchus oleraceus L. 1062.
galawâyen = Urospermum picroides F. W. Schmidt 1050.
galâweyn (Ascherson) = Reichardia tingintana Roth. 1066.
gamh-el-fâr = Panicum verticillatum L. 61.
ganîsh = Saccharum biflorum Forsk. 40.
garad = Gymnocarpus decander Forsk. 355.
garba (Forsk.) = Farsetia aegyptiaca Turra 420.
gargas (Forsk.) = Trigonella stellata Forsk. 483.
garmal = Zygophyllum simplex L. 577.
garnîya = Pelargonium zonale Willd. 562.
gassûl (generally) = Mesembrianthemum crystallimum L. 321.
gatha = Tribulus alatus Del.; = T. terrestris L. 573.
gathba = Lotus arabicus L. 506.
gawîn (Schweinfurth) = Linaria aegyptiaca (L.) Dum. 865.
gazar = Daucus Carota L. 713; = D. litoralis Sibth. and Smith var. Forskâlei Boiss. 712.
gazar beledy = Daucus Carota L. var. Boissieri Schweinfurth-Wittmack 713.
gazar-esh-sheytâny (Forsk.) = Torilis neglecta Roem. and Schult. 714.
gazar sheytâny (Ascherson) = Ammi Visnaga (L.) Lam. 699.
geheysh (Schweinfurth) = Salvia aegyptiaca L. var. pumila (Benth.) Aschers. and Schweinf. 828.
gelâweyn = Launaea mucronata Muschler 1058.
geleyqela (Schweinf.) = Alsine picta (Sibth. and Smith) Fenzl. 341.
geleyqela (Ascherson) = Carrichtera annua (L.) Aschers. 418.
gemdâh (Forsk.) = Fagonia arabica L. 583.
genemîye (Ascherson) = Statice pruinosa L. 725.
geneyme (Muschler) = Plantago notata Lag. 909.
geneyme (Schweinfurth) = Plantago ovata Forsk. 909.
gerâgîre (Ascherson) = Cakile maritima Scop. var. aegyptiaca Coss. 432.
gera'ît (Schweinfurth) = Phagnalon Barbeyanum Ascherson and Schweinf. 977.
gergîg (Delile) = Haplophyllum tuberculatum (Forsk.) A. Juss. 585.
gerideh = Phoenix dactylifera L. (Leaf-stalk) 187.
gerrâu (generally) = Andropogon halepensis Brot. 43.

gery (Klunzinger) = Eruca sativa Lam. 416.

gettiât (Schweinf.) = Psoralea plicata Del. 509.

ghâb (Schweinf.-Muschler) = Arundo Donax L. 115.

ghâb (Ascherson) = Phragmites communis Trin. var. isiaca (Del.) Cosson 116.

ghâḅ (Muschler) = Phragmites communis Trin. var. stenophylla Boiss. 116.

ghâbrîhy (Damietta-Ascherson) = Phragmites communis Trin. var. isiaca (Del.) Cosson 116.

ghallash sheytâny (Ascherson) = Avena fatua L. 99.

ghalqa (generally) = Daemia tomentosa (L.) Vatke 746.

ghalqaï = Daemia tomentosa (L.) Vatke 746.

ghalqet-ed-dîb (Forsk.) = Peganum Harmala L. 572.

ghalqet-ed-dîle (Wilkinson) = Asclepias sinaica Muschler 754.

ghannûm (Schweinfurth) = Globularia arabica Jaub. and Spach 901.

ghardaq = Calligonum comosum L'Hérit. 257; = Nitraria retusa (Forsk.) Aschers. 575.

gharqad = Nitraria retusa (Forsk.) Aschers. 575.

ghassa (Schweinfurth) = Otostegia microphylla (Desr.) Aschers. and Schweinf. 835.

ghassûl = Salicornia fruticosa L. 287.

ghassûl (Ascherson) = Zygophyllum coccineum L. 578.

ghassûl-frengi (Ascherson) = Mesembrianthemum crystallinum L. 321.

ghereyya = Calendula aegyptiaca Pers. 1019.

gheyl (Schweinf., Muschler) = Aerva tomentosa Forsk. 312.

gheyl (Schweinfurth) = Asclepias sinaica Muschler 754.

gheyl = Eurotia ceratioides (L.) A. Mey. 281.

ghobbeyrâ = Crozophora tinctoria (L.) Adr. Juss. 593; = C. tinctoria (L.) Adr. Juss. var. subplicata Muell. Arg. 593.

ghobêrâ (Lakson-Schweinf.) = Mollugo Glinus A. Rich. 326.

ghobeyrâ = Artemisia Herba alba Asso 1013; = Frankenia laevis L.; = F. pulverulenta L. 645; = Crozophora plicata (Vahl) A. Juss. var. prostrata (Dalz.) Muell. Arg. 593.

ghobeyrâ (Ascherson) = Achillea Santolina L. 1007; = Kochia muricata (L.) Schrad. 283; = Silene villosa Forsk. 335.

ghobeyrâ (Aschers., Muschler) = Salsola Kali 296.

ghobeyrâ (Del.) = Pulicaria undulâta DC. 987.

ghobeyrâ (Roth) = Ambrosia maritima L. 992; = Crozophora plicata (Vahl) A. Juss. 592; = Heliotropium supinum L. 784.

ghobeyrâ (Schweinfurth) = Convolvulus microphyllus Sieb. 766.

gidiai (Klunzinger) = Pulicaria crispa Barth. and Hook. 988.

gilbân = Lathyrus hirsutus L.; = L. sativus L. 547.

gilbân (Ascherson) = Vicia calcarata Desf. 542.

gileglâg = Robbairea prostrata (Del.) Boiss. 347.

gillu (Schweinf.) = Anabasis setifera Moq. Tand. 301.

gilweyn = Anchusa aggregata Lehm. 796.

gimbîl = Cordia Gharaf Ehrenbg. 782.

gimmeyz = Ficus Sycomorus L. 248.

gimmeyz arabi = Ficus Sycomorus L. var. citrina Schweinf. and Muschler 249.

gittiât = Caylusea canescens St. Hil. 438.

goreybiyeh (Schweinfurth) = Farsetia aegyptiaca Turra 420.

goreybry (Wilkinson) = Farsetia aegyptiaca Turra 420.

goreyer (Schweinfurth) = Phagnalon Barbeyanum Aschers. and Schweinf. 977.

grinsa = Carlina involucrata Poir. var. Letourneuxii Aschers. and Schweinf. 1023.

grinse (Schweinf.) = Carlina involucrata Poir. var. Letourneuxii Aschers. and Schweinf. 1023.

gûb-rumy (Damietta, Ascherson and Schweinf.) 115.

gudub = Tribulus macropterus Boiss. 574.

gumeyley (Ascherson) = Matricaria aurea (L.) Boiss. 1010.

gummeyly = Spergularia salina Prsl. var. alexandrina Aschers. 344.

gurdab = Polygonum equisetiforme Sibth. and Smith 265.

gurdy = Ochradenus baccatus Del. 443.

gurmeyl = Frankenia laevis L.; = F. pulverulenta L. 645.

habaq = Mentha sylvestris L. 819; = Polygonum senegalense 267.

habaq (Ascherson) = Veronica anagallis L. 876.

habaq (Ascherson, G. Roth) = Mentha sylvestris L. var. niliaca Del. 820.

habaq (Delile) = Mentha Pulegium L. 820.

habaqbaq (Delile) = Mentha sylvestris L. var. niliaca Del. 820.

habaq-el-bahr = Mentha sylvestris L. var. niliaca Del. 820.

habbâs = Mimosa asperata L. 458.

habb-el-areysh (Ascherson) = Thesium humile Vahl. 255.

habb-el-'aziz = Cyperus esculentus L. 174.

habb-el-'azîza = Cyperus esculentus L. 174.

habb-el-bân = Moringa aptera Gaertn. 445.

habb-el-barâghît = Plantago ramosa (Gil.) Aschers. 912.

habb-el-melûk = Jatropha Curcas L. 609.

habb-er-reshâd (Schweinfurth) = Lepidium sativum L. 425.

habb-esh-shems = Helianthus annuus L. 997.

habbghâly (Wilkinson) = Moringa aptera Gaertn. (the pods.) 445.

habb sûda = Nigella sativa L. 371.

habeyn (Klunzinger) = Seetzenia orientalis Decsne. 575.

habwa (Schweinfurth) = Physalis peruviana L. 845.

hâd = Cornulaca monacantha Del. 302; = Fagonia arabica L. 583; = Salsola foetida Del. 299.

hâd (generally) = Salsola vermiculata L. var. villosa (Del.) Moq. Tand. 299.

hadâd = Aizoon canariense L. 325.

hadah = Pennisetum ciliare (L.) Link 66.

hadah (Schweinf.) = Pennisetum dichotomum (Forsk.) Del. 65.

haddieyde (Schweinfurth) = Launaea Cassiana (Jaub. and Spach) Muschler 1058.

hadhadîd (Klunzinger) = Senecio flavus (Decsne.) Sch. Bip. 1016.

haggn = Phragmites communis Trin. var. isiaca (Del.) Cosson 116.

haidah = Lepturus incurvatus Trin. 157.

haïfal (Ehrenberg) = Farsetia aegyptiaca Turra Farset 420.

haithâm = Kochia muricata (L.) Schrad. 283.

halâb = Periploca laevigata Ait. 743.

halâblab (Schweinfurth) = Periploca laevigata Ait. 743.

halablûb = Bupleurum subovatum Link. 692; = B. subovatum Link var. heterophyllum (Link) Wolff 693.

halâma (Schweinfurth) = Lithospermum callosum Vahl. 800.

halâme = Heliotropium persicum Lam. 788.

halâme (Ascherson) = Heliotropium luteum Poir. 786.

halâwe (Forsk. Del.) = Linaria Haelava Chav. 867.

halâwy = Fagonia cahirina Boiss.; = F. cretica A. 581.

halayûn (Ascherson) = Statice pruinosa L. 725.

hâlem = Lithospermum arvense L. 799.

hâlem (Ascherson) = Lithospermum callosum Vahl. 800.

halfâ (at Damietta) = Imperata cylindrica (L.) P. Beauv. 39.

halfâ (generally) = Eragrostis bipinnatus (L.) Muschler. 128.

halfa (Muschler) = Lygeum spartum L. 69.

haliyûn = Asparagus stipularis Forsk. var. brachyclados Boiss. 231.

hall-en-nâr = Ruscus hypophyllum L. 231.

halleyn (Forsk.) = Juncus bufonius L. var. fasciculatus Koch. 204.

halûk = Orobanche ramosa L. 889.

halûk (Forsk.) = Cistanche lutea Hoffmg. and Link. 887.

halûk (generally) Orobanche crenata Forsk. 893.

haluk et tomatîm = Hypecoum aegyptiacum (Forsk.) Aschers. Schweinf. 381.

halûk-metaby (Forsk.) = Orobanche crenata Forsk. 893.

halûk rîhy (Forsk.) = Orobanche aegyptiaca Pers. 891.

hamâm-el-burg (Ascherson) = Lathyrus Aphaca L. 545.

hamarte = Eragrostis bipinnatus (L.) Muschler 128.

hamasos = Rumex vesicarius L. 261.

hamd = Agathophora alopecuroides (Del.) Bunge 303; = Anabasis setifera Moq.-Taud. 301; = Halocnemon strobiliaceum M. Bieb. 285; = Mesembrianthemum Forskâlii Hochst. 322; = Oxalis corniculata L. 564.

hamd (Ascherson) = Salicornia fruticosa L. 287; = Suaeda monoica Forsk. 288.

hamd (Delile) = Zygophyllum album L. 578.

hamd (Wilkins.; Schweinf.) = Traganum nudatum Del. 293.

hamd helwa (Ascherson) = Oxalis corniculata L. 564.

hamel = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.

hamîm (Klunzinger) = Trichodesma africanum (L.) R. Br. 789.

hamîma = Moricandia clavata Boiss. and Rent. 416; = M. nitens Durand and Batt. 415.

hammâd = Rumex vesicarius L. 261.

hammât (Wilkinson, Schweinfurth) = Ficus pseudosycomorus Decsne. 247.

hamsis = Rumex vesicarius L. 261.

hamûl = Ceratophyllum demersum L. 363; = Cuscuta arabica Fres. 774; = Naias minor All. 23; = Ruppia maritima L. vars. piralis (L.) Aschers. 17; = Utricularia inflexa Forsk. 898; = U. stellaris L. fil. 899.

hamul-el-bahr = Cymodocea nodosa (Ucria) Aschers. 18.
hanbeyt = Rumex vesicarius L. 261.
handal = Citrullus Colocynthis Schrader 939.
handaquq = Trigonella media Delile 481.
handûra (Ascherson) = Solanum Lycopersicum L. 843.
haneydey (Schimper) = Varthemia montana (Vahl) Boiss. 984.
hansis = Rumex vesicarius L. 261.
hanzab (Forsk.) = Emex spinosus L. 258.
haqbaq (Lippi) = Capparis decidua (Forsk.) Edgew. 391.
har = Robbairea prostrata (Del.) Boiss. 347.
hâra = Robbairea prostrata (Del.) Boiss. 347.
hargel = Solenostemma Argel (Del.) Hayne. 749.
harmal (generally) = Peganum Harmala L. 572.
harmal (G. Roth) = Ruta chalepensis L. 584.
harra (Ascherson) = Cakile maritima Scop. var. aegyptiaca Cors. 432.
harra (generally) = Coronopus niloticus (Delile) Spreng. 428.
harra (Damietta) = Sisymbrium Irio L. 407.
harrah = Diplotaxis Harra Boiss. 414.
harrâr (Schweinf.) = Centaurea pallescens Del. 1038.
harrâz = Acacia albida Delile 459.
hasalbân (generally) = Rosmarinus officinalis L. 829.
hashîsh-el-faras = Andropogon halepensis Brot. 43.
hashish-el-farâs (Forsk.) = Lolium perenne L. 152.
hashîsh-el-faras (Schweinf.) = Ethulia conyzoides L. 960.
hashîsh-el-fârras (Schweinf.) = Sphenoclea zeylanica Gaertn. 947.
hashîsh-el-rîh = Parietaria judaica L. 253.
hashîsh-lîbaye (Ascherson) = Lippia nodiflora Rich. 809.
hashîsh sakrân = Physalis peruviana L. 845.
hashishet-el-'ugrab (Schweinf.) = Erythraea spicata Pers. 732.
hashîshet-el-mamîta = Glaucium corniculatum Curt. 380.
hashîshet-er-rîh = Diotis maritima Smith. 1008.
haskanît (Schweinf.) = Aristida pungens. 80.
hatab = Arthrocnemon glaucum (Del.) Unger-Sternb. 286; = Suaeda vera Forsk. 289.
hatab ahmar = Tamarix amplexicaulis Ehrenberg 649; = T. arborea Bunge 649; = T. macrocarpa Bunge 650; = T. nilotica (Ehrenbg.) Bunge 648; = T. passerinoides Del. 650.
hatab ahmar (generally) = Tamarix articulata Vahl. 649.
hatab haddade = Salicornia fruticosa L. 287.
hatab-haddady = Halocnemon strobiliaceum M. Bieb. 285.
hatab-widny (Ascherson) = Limoniastrum monopetalum Boiss. 727.
hatab zeyta = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.
hatab zeyty (Schweinfurth) = Inula crithmoides L. 983.
haudau (Ehrenberg) = Launaea Cassiana (Jaub. and Spach) Muschler 1058.
haushez = Rhus Oxyacantha Cav. 611.
hauwwa (Forsk. Del.) = Reichardia tingintana Roth 1065.
hawdân (Forsk.) = Crepis radicata Forsk. 1068.

Hay-adem-el-mâ (Delile) = Pistia stratiotes L. 191.

hedeneï (Schimper) = Gaillonia calycoptera (Decsne.) Jaub and Spach 918.

hedhedîd = Senecio flavus (Decsne.) Sch. Bip. 1016.

hegelîg (generally) = Balanites aegyptiaca Delile 587.

helawân = Bupleurum subovatum Link. 692; = Launaea glomerata Hook. 1061.

helawân (Ascherson) = Bupleurum subovatum Link var. heterophyllum (Link) Wolff 693; = Picris coronopifolia DC. 1053.

helba = Trigonella Foenum graecum L. 480.

heley-ou (Ascherson) = Salsola Volkensii Schweinf. and Aschers. 296.

helleyu (Aswân) = Saccharum biflorum Forsk. 40.

hema = Pennisetum americanum (L.) K. Schum. 64.

hemâr = Andropogon hirtus L. var. pubescens Vis. 46; = Oryzopsis miliacea (L.) Aschers.-Schweinf. 84.

hemmam (Forsk.) = Suaeda vera Forsk. 289.

hendaqûq = Melilotus messamensis (L.) Desf. 493; = Trigonella hamosa L. 482; = T. stellata Forsk. 483.

hendaqûq (Schimper) = Globularia arabica Jaub. and Spach. 901.

hendaqûq (generally) = Melilotus indicus L. 494.

hendaquq murr (Ascherson) = Melilotus indicus L. 494.

hendebey = Cichorium endivia L. 1047.

hend-el-yhorâb = Verbena officinalis L. 810.

hend-el-ghorâb (Ascherson) = Carthamus glaucus M. B. 1041.

hend-el-ghorâb (G. Roth) = Verbena supina L. 810.

henedlai = Cucumis prophetarum L. 937.

hensalôd = Ruppia maritima L. var. rostrata Agardh. 17.

hensislôd = Ruppia maritima L. var. rostrata Agardh 17.

hensalûd (Klunzinger, Schweinf.) = Ruppia maritima L. var. rostrata Agardh 17.

herdjel (Schimper) = Asclepias sinaica Muschler 754.

heydeyd (Schweinf.) = Salsola longifolia Forsk. 298.

heyseb (Forsk.) = Frankenia laevis L. var. revoluta Durand and Barr. 645.

heyshe = Diplachne fusca (L.) Beauv. 113.

hideyd = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.

higl = Portulaca oleracea L. 327.

hinâ-ed-dâb' (Klunzinger) = Echium longifolium Delile 804.

hinâ-el-ghûl = Alkanna tinctoria Tausch 798; = Arnebia linearifolia DC. 802; = Echium Rauwolfii Del. 805.

hinâ-el-ghûl (Ascherson) = Echium sericeum Vahl. 804.

hindîb (generally) = Cichorium endivia L. 1047.

hindîh (Schweinf.) = Cichorium pumilum Jacq. 1046.

hish = Diplachne fusca (L.) Beauv. 113.

holageyd (Klunzinger) = Plantago ciliata Desf. 910.

hommeyd = Oxalis corniculata L. 564; = Rumex dentatus L. 260; = R. pictus Forsk. 261; = R. vesicarius L. var roseus (L.) Schweinf.-Muschler 262.

hommeyd (generally) = Rumex vesicarius L. 261.

hommeyd (Roth) = Rumex aegyptiacus L. 260.
hommeyd (Schweinf.) = Emex spinosus L. 258.
hommus (the seed) = Cicer arietinum L. 538.
homrâ = Frankenia pulverulenta L. 645.
horbeh = Lotus villosus Forsk.; = L. villosus Forsk. var. Aschersonii Schweinf. and Muschler 508.
horbith (Ascherson) = Lotus villosus Forsk.; = L. villosus Forsk. var. Aschersonii Schweinf. and Muschler 508.
horbuth (Schweinfurth) = Astragalus annularis Forsk. 520.
horrah = Spergularia salina Presl. var. alexandrina Aschers. 344.
horreish (Roth) = Naias marina L. var. muricata (Del.) A. Br. 22.
horreyq (Forsk.) = Trichodesma africanum (L.) R. Br. 789.
hosâd (Klunzinger) = Heleochloa schoenoides (L.) Host. 85.
hotteyba (Ascherson) = Ononis reclinata L. var. minor Moris 476.
howai (Schweinf.) = Atriplex farinosum Forsk. 280.
hozzeyl (Ascherson) = Crucianella membranacea Boiss. 923.
hûdân (Ascherson) = Launaea glomerata Hook. 1061.
hushâr = Robbairea prostrata (Del.) Boiss. 347.
huweywa (Schweinfurth) = Launaea glomerata Hook 1061.
huwry (Wilkinson) = Launaea glomerata Hook. 1061.
huwweyt-el-kilâb (Klunzinger) = Launaea glomerata Hook. 1061.

iglîg = Balanites aegyptiaca Delile 587.
îm-es-salîb = Dactyloctenium aegyptium (L.) Willd. 109.
ingîl = Cuscuta arabica Fres. 774.
'irq-en-Najîl = Panicum sanguinale L. 50.
isba'-el-'arûs = Astragalus Sieberi DC. 524.
isuaï = Asphodelus microcarpus Viv. 229.
itmâny (Forskål) = Mirabilis Jalapa L. 316.

ja' âde (Schweinfurth) = Ajuga Iva Schrb. 839.
jebah (Klunzinger) = Aristida hirtigluma Steud. 79.
junbût = Prosopis Stephaniana (Willd.) Spr. 457.

kabar = Sinapis alba L. 413; = L. juncea L. 412.
kabar (Delile) = Capparis spinosa L. 391.
kabar (generally) = Brassica nigra Koch 410.
kabar afrît (Ascherson) = Sinapis arvensis L. 412.
ka'b-el-ghazal = Lotus corniculatus L. 504.
kabshîya (Forsk.) = Erodium glaucophyllum (L.) L'Hérit. 561.
kaderânbes = Solanum insanum L. 844.
kafan dar = Ruscus hypophyllum L. 231.
kahalâ (Schweinfurth) = Anchusa Milleri Willd. 797.
kahalâ (Ascherson) = Echium sericeum Vahl. 804.
kahâli (Sinai, Muschler) = Arnebia decumbens Coss. and Kral. 801.
kahaly (Wilkinson, Schweinfurth) = Arnebia linearifolia DC. 802.
kahâly (Wilkinson) = Echium longifolium Delile 804.

kaheylâ (Forsk.) = Echium Rauwolfii Del. 805.

kaheyly = Echium longifolium Delile 804.

kahlâ (Forsk.) = Calendula aegyptiaca Pers. 1019.

kahly (Forskål) = Silene villosa Forsk. 335.

ka'kûl = Erodium glaucophyllum (L.) L'Hérit. 561.

kalkh = Ferula sinaica Boiss. 707; = Zozimia absynthiifolia (Vent.) DC. 709.

kammâsh-en-nebi = Anastatica hierochnutica L. 404.

kammûn = Cuminum Cyminum L. 717.

kamnûn iswid = Nigella sativa L. 371.

kaqaf = Leontice leontopetalum L. 373.

karemlân (Schweinfurth) = Peganum Harmala L. 572.

karû (Ascherson) = Heliotropium luteum Poir. 786.

karwân (Forsk. Del.) = Ceruana pratensis Forsk. 969.

kasheringy = Dolichos Lablab L. 551.

kâteha = Lotus corniculatus L. 504.

kebâd (Wilkinson, Schweinfurth) = Launaea spinosa Sch. Bip. 1061.

kebâoh (Schweinfurth, Muschler) = Reichardia tingintana Roth 1066.

kebâs = Reichardia tingintana Roth 1066.

kedâd = Astragalus cahiricus DC. 526; = A. Forskålei Boiss. 525.

kedâd (Forskål) = Launaea spinosa Sch. Bip. 1061.

keff-fathma-bint-en-nebi = Anastatica hierochnutica L. 404.

keff-mariam = Anastatica hierochnutica L. 404.

keïda (Ascherson) = Echium Rauwolfii Del. 805.

kelîl (Forsk.) = Rosmarinus officinalis L. 829.

kemmûn (generally) = Zygophyllum coccineum L. 578.

kemmûn aswad = Plantago exigua Murr. 913.

kemmûn daker (Schweinfurth) = Plantago exigua Murr. 913.

kenissa kul (nub.) = Centaurea pallescens Del. 1038.

kerafs = Ammi majus L. 699.

kerafs (generally) = Apium graveolens L. 695.

kerâwiâ = Anethum graveolens L. 707; Carum Carvi L. 698.

kerâwy (Ehrenberg) = Pithyranthus tortuosus Benth. and Hook. 697.

kerkadêb = Hibiscus Sabdariffa L. 635.

kerkeysh = Medicago litoralis Rohde 8; = M. truncatula Gaertn. 488.

kerkhus = Androcymbium punctatum Baker 208.

kerty (Schweinfurth) = Chrysantemum Parthenium Bernh. 1009.

khâfur = Avena fatua L. 99. = Avena barbata Brot. 99; = Avena Wiestii Steud. 100; = Schismus arabicus Nees 134.

khâfûr (Schweinfurth) = Avena sterilis L. 98.

khamseys (Schweinf.) = Rumex pictus Forsk. 261.

khanâ-net-enna'ger (Schweinfurth) = Phagnalon nitidum Fresen. 977.

khanânet-en-na'-geh (Wilkinson) = Plantago amplexicaulis Cavan. 908.

khanîn (Ascherson) = Panicum Crus galli L. var. Sieberiana Aschers. et Schweinf. 52.

khanser-el-darusâh (Wilkinson) = Onobrychis ptolemaica (Del.) DC. 535.

khanseret-el'-arûsa (Forskål) = Astragalus bombycinus Boiss. 522.

khansîr-el'-arûs = Astragalus Sieberi DC. 524.

kharaq-el-bahr (Forsk., Del.) = Xanthium strumarium L. 993.

khardal = Sinapis arvensis L.; = S. arvensis L. var. turgida (Del.) Aschers. and Schweinf. = S. juncea L. 412.

khardal (Delile) = Brassica nigra Koch 410.

kharfâr (Ehrenberg) = Phalaris paradoxa L. var. praemorsa Coss. 71.

khargheyl (Schweinf.) = Peganum Harmala L. 572.

kharîg (Schweinf.) = Vicia calcarata Desf. 542.

kharna = Salvia palaestina Benth. 825.

kharra-bitty (Ascherson) = Launaea mucronata Muschler 1058.

kharshûf = Cynara Scolymus L. 1029; = C. Sibthorpiana Boiss. and Heldr. 1028.

kharwa' = Ricinus communis L. 595.

khâsag (Schweinf.) = Medicago ciliaris Willd. 491.

khashîr = Echinops galalensis Schweinf.; = E. glaberrimus DC. 1022.

khashîr (generally) = Echinops spinosus L. 1022.

khasir = Silene succulenta Forsk. 340.

khasraqût = Withania somnifera Dun. 846.

khass (Ascherson) = Lemna gibba L. 195.

khaûf (Schweinfurth) = Pulicaria crispa Benth. and Hook 988.

khawa-binty (Ascherson) = Picris coronopifolia DC.; = P. coronopifolia DC. var. pilosa (Del.) Aschers. and Schweinf. 1053.

khatmîye = Althaea ficifolia Cavan. 628.

khazâme = Reseda pruinosa Del. 442.

khelle = Ammi majus L. 699; = Torilis neglecta Roem. and Schult. 714.

khelle (generally) = Ammi Visnaga (L.) Lam. 699.

khelley (generally) = Ammi majus L. 699.

kherît = Salsola foetida Del. 299.

kheryia = Verbascum sinaiticum Benth. 862.

khershûm-en-naqeh (Delile) = Tribulus alatus Del. 573.

kheyêt = Frankenia pulverulenta L. 645.

kheyly = Matthiola incana B. Br. 397.

kheyta = Gladiolus segetum Ker-Gawl. 238; = Iris Sisyrinchium L. 237.

kheyzarân (Forsk., Del.) = Centaurea Lippii L. 1034.

khillâl = Ammi Visnaga (L.) Lam. 699.

khillân = Ammi Visnaga (L.) Lam. 699.

khille = Rumex dentatus L. 260.

khirfeyeh = Reseda decursiva Forsk. 440.

khirfeysh = Reseda alba L. 440.

khirs (G. Roth) = Diplachne fusca (L.) Beauv. 113.

khirsheyf = Leontice leontopetalum L. 373.

khirsheyf (Ascherson) = Polycarpaea repens (Forsk.) Aschers.-Schweinf. 350; = Gymnarhena micrantha Desf. 975.

khirshûf = Polycarpaea memphitica Del. 350.

khiyâr = Cucumis sativus L. 936.

khobbeyly (Schweinfurth) = Rhynchosia Memnonia (Del.) DC. 551.

khobbeyze-esh-sheytânîyeh (Delile) = Malva parviflora L. 627.

khobbeyze frengîye (Ascherson) = Malva silvestris L. 626.

khobbeyzet-nawwar (Ascherson) = Lavatera cretica L. 629.
khodar (Klunzinger) = Brassica nigra Koch 410.
khodar (Schweinfurth) = Trichodesma africanum (L.) R. Br. 789.
khorêq = Urtica urens L. 251.
khoreysa (generally) = Zygophyllum album L. 578.
khoreysy (Forsk.) = Zygophyllum album L. 578.
khosherûf (Schweinf.) = Atractylis flava Desf. 1024; = Carduncellus eriocephalus Boiss. 1043.
khosheyn = Helianthemum ellipticum (Desf.) Pers. 656.
khosheyn (Forsk.) = Helianthemum cahiricum Delile 655; = H. Lippii (L.) Pers. 656.
khreys = Salicornia herbacea L. 287.
khreysy (Forsk.) = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.
khreysy = Salicornia fruticosa L. 287.
khreyt (generally) = Salsola foetida Del. 299.
khreyt = Salsola vermiculata L. var. villosa (Del.) Moq. Tand. 299.
khrîyet (Aschers.-Schweinf.) = Salsola foetida Del. 299; = Suaeda monoica Forsk. 288.
khubb (Ascherson) = Carex divisa Huds 185.
khubb = Carex extensa Good. 185.
khubbeyra = Pelargonium zonale Willd. 562.
khucytême (Ascherson) = Convolvulus althaeoides L. 767.
khurm-el-ibra (Ascherson-Muschler) = Lobularia arabica (Boiss.) Muschler 422.
khurm-el-ibrah (Ascherson) = Lobularia libyca Webb. 421.
khuta = Solanum Lycopersicum L. 843.
Khûz = Phoenix dactylifera L. (Great pinnules) 187.
kimmsâsh = Andrachne aspera Spreng. 597.
kirry = Heliotropium luteum Poir. 786.
kishk-el-almâs (v. Samson) = Asparagus officinalis L. 230.
kittân = Linum usitatissimum L. 569.
kobbeyzeh (generally) = Malva parviflora L. 627.
kodda = Conyza aegyptiaca Ait, 967.
kontranîye (Ascherson) = Erythraea ramosissima Pers. 732.
kreysha = Astragalus peregrinus Vahl 523.
kreyshed-el-djedj (Schimper) = Lasiopogon muscoides (Desf.) DC. 976.
kreysheh (Ascherson) = Trifolium tomentosum L. 499.
kreyshet-el-djedj (Schweinf.) = Ifloga spicata Sch. Bip. 973.
kreyshet-el-djedy (Ascherson) = Astragalus baeticus L. 521.
kreyshet-er-raî' = Trifolium tomentosum L. 499.
kreysht-el-homâr = Astragalus peregrinus Vahl. 523.
krîsh (Ascherson) = Salsola foetida Del. 299.
krumb-es-sahra (Forskål) = Erucaria crassifolia (Forsk.) Del. 436.
kulleyly = Emex spinosus L. 258.
kurbâl (Ascherson) = Ifloga spicata Sch. Bip. 973.
kurbât (Muschler) = Filago spathulata Presl. var. prostrata (Paerl.) Boiss. 974.
kursene = Vicia Ervilia (L.) Willd. 543.
kus (Forsk.) = Senecio aegyptius L. 1017.
kûsa (generally) = Cucurbita Pepo L. 941.

kusbet-el-belâd = Aizoon canariense L. 325.
kushayt = Fagonia Bruguieri DC. 581.
kuteyhah = Trigonella hamosa L. 482.
kutkât (generally) = Pulicaria crispa Benth. and Hook. 988.
kutkât (Schweinfurth) = Pulicaria undulata DC. 987.
kuzâma (Muschler) = Gypsophila Rokejeka Del. 331.
kuzbara = Coriandrum sativum L. 691.
kuzbaret-el-bir (Delile) = Adiantum capillus Veneris L. 3.

lamh-en-naqa' = Zannichellia palustris L. 21.
lasaf = Capparis galeata Fres. 391.
lasal = Oxalis cernua Thumb. 564.
lassaf (Schweinfurth) = Capparis spinosa L. 391.
lebakh-el-gebel (Forskål) = Cocculus pendulus Diels. 375.
leben-el-eshâr = Euphorbia mauritanica Lam. 603.
lebur-el-homâra (Delile) = Daemia tomentosa (L.) Vatke 746.
leklâkh (generally) = Cirsium syriacum (L.) Gaertn. 1027.
lekhlîkh (Schweinf.) = Silybum Marianum (L.) Gaertn. 1029.
lellel (Ehrenberg) = Artemisia monosperma Del. 1012.
libbân = Reichardia tingitana Roth. 1066.
libbaney (Muschler) = Andrachne telephioides L. 596.
libbêyn = Euphorbia aegyptiaca Boiss. 602; = E. arguta Soland. 604; = E. chamaepeplus Baill. and Gaill. 607; = E. indica Lam. 601; = E. Peplis L. 600; = E. Peplus L. var. maritima Boiss. 606.
libbeyn = Oxystelma esculentum R. Br. var. Alpini N. C. Brown 750; = Senecio belbeysius Del. 1016; = Sonchus maritimus L. 1063.
libbeyn (Ascherson) = Cynanchum acutum L. 747; = Launaea mucronata Muschler 1058.
libbeyn (Ascherson-Schweinf.) = Euphorbia Peplus L. 606.
libbeyn (Ehrenberg) = Euphorbia cornuta Pers. 603.
libbeyn (generally) = Lactuca saligna L. 1064; = Sonchus oleraceus L. 1062.
libbêyn (Klunzinger) = Euphorbia granulata Forsk. 600.
libbeyn (G. Roth) = Senecio aegyptius L. 1017.
libbeyn (Wilkinson) = Reichardia tingitana Roth 1065.
libbeyn-er-roqabîya = Euphorbia prunifolia (Jacq.) Muell. Arg. 608.
libbeyn-esh-sheykh (Forsk.) = Lactuca saligna L. 1064.
libdân = Beta vulgaris L. var. maritima (L.) Boiss. 274.
liblâb = Dolichos Lablab L. 551.
lifsân = Brassica nigra Koch. 410.
lift = Brassica rapa L. 410.
liglîg (Ascherson-Schweinfurth) = Balanites aegyptiaca Delile 587.
likh (Ascherson) = Lemna paucicostata Heglmaier 196.
limnâ = Lawsonia inermis L. 672.
lîne = Lotus corniculatus L. 504.
lisân-el-'asal (Forsk.) = Echium sericeum Vahl 804.
lisân-el-'asfûr = Cassia acutifolia Delile 467; = Delphinium Ajacis L. 371.
lisân-el-hamal (Ehrenberg) = Erodium glaucophyllum (L.) L'Hérit. 561.
lîsan-el-hamal (generally) = Plantago maior L. 906.
lisân-el-kelb (Ascherson) = Carduus pycnocephalus L. 1026; = Plantago

maior L. 906; = Scorpiurus muricata L. 529.

lisân-et-tîn = Statice Limonium L. 724.

lisân-eth-thôr = Borrago officinalis L. 794.

lishlish (Delile) = Salvadora persica Garcin 729.

lislis (Ascherson) = Reboudia microcarpa (Boiss.) Coss. 435.

lissan-hammel (Schweinfurth, Ascherson, Muschler) = Plantago maior L. 906.

loqmet-en-na'ge (Forsk.) = Plantago ovata Forsk. 909.

lorbeyh = Chenopodium murale L. 273.

lub = Luffa cylindrica (L.) Roem. 935.

lubân (Ascherson) = Gnaphalium luteoalbum L. 978.

lubbêne (Schweinfurth) = Anagallis arvensis L. 720.

lubbeyn (Ascherson) = Euphorbia Paralias L. 608; = Reichardia tingintana Roth 1066.

lubiâ = Dolichos Lablab L. 551.

lubiâ (generally) = Vigna sinensis Endl. var. sesquipedalis Koernicke 550.

lubiâ âfin (forma sativa Schweinf. in litt.) = Dolichos Lablab L. 551.

lubiâ beledy (Forsk.) = Vigna sinensis Endl. var. sesquipedalis Koernicke 550.

lueyna (Ascherson) = Trifolium resupinatum L. 499.

luqmet-el-qâdy = Ottelia alismoides (L.) Pers. 30.

lusey (Ascherson) = Neurada procumbens L. 455.

lussâq = Forskalia tenacissima L. 254.

lusseyq = Forskalia tenacissima L. 254; = Trichodesma africanum (L.) R. Br. 789.

lusseyq (Ascherson) = Launaea nudicaulis Hook. 1059.

machta (Schweinf.) = Cleome drosserifolia Del. 386.

madâwe (Forsk.) = Cressa cretica L. 760.

magenniney (Wilkinson) = Linaria aegyptiaca (L.) Dum. 865.

mahad = Schouwia purpurea (Forsk.) Muschler = Sch. purpurea (Forsk.) Muschler var. Schimperi Muschler 418.

mahallaq (Defless) = Astragalus annularis Forsk. 520.

mahanâwy = Cucumis Melo L. 937.

maksus-el-gariyia = Polygonum Bellardi All. 264.

ma' laqah (Forsk., Del.) = Euphorbia Peplus L. 606.

mandîlîye (Schweinf.) = Chrysanthemum coronarium L. 1008.

mango = Mangifera indica L. 612.

manthûr = Cheiranthus Cheiri L. 399; = Matthiola incana R. Br. 397; = M. oxyceras DC. 398; = Nasturtium palustre DC. 401.

manthûr madbaq = Matthiola incana R. Br. 397.

maqd (Ascherson) = Cichorium pumilum Jacq. 1046.

maqdûnis = Petroselinum sativum Hoff. 696.

maqdûnis frengy (Forsk.) = Chaerophyllum cerefolium (L.) Crtz.) 703.

mar'a-el-gêmâl (Ascherson) = Fagonia arabica L. 583.

mardaqûsh = Origanum Majorana L. 821.

markh = Leptadenia pyrotechnica (Forsk.) Decsne 756.

marûr = Launaea Cassiana (Jaub. and Spach) Muschler 1058.

mâse (Delile) = Vigna sinensis Endl. var. sesquipedalis Koernicke 550.

meagnûne = Cleome arabica L. 387.

medahîn = Fagonia glutinosa Del. 580.

medadath = Aegilops triuncialis L. 155.

meddâd = Diplotaxis acris (Forsk.) Boiss. 414; = Medicago ciliaris Willd. 491.

meddâd (Ascherson) = Jussiaea repens L. 680.

meddâd-el-yerâ'a = Muscari comosum (L.) Mill. 223.

medêb (Ascherson) = Heliotropium undulatum Vahl 787.

megennine (Ascherson) = Haplophyllum tuberculatum (Forsk.) Adr. Juss. 585.

melâneh = Cicer arietinum L. 538.

melbeyn = Euphorbia cornuta Pers. 603.

melekîya (Ehrenberg) = Farsetia aegyptiaca Turra 420.

melleyh (Wilkinson) = Statice pruinosa L. 725.

melukhîye = Corchorus antichorus Rauschel 624; = C. olitorius L. 622; = C. olitorius L. var. incisifolius Ascherson and Schweinf. 623; = C. tridens L. 623; = C. trilocularis Linn. 622.

melukhîyet iblîs (Ascherson) = Sida spinosa L. 630.

menâsh-ed-dubân (Schweinfurth) = Erythraea spicata Pers. 732.

meryanûye (Forsk.) = Salvia lanigera Poir. 827.

mesâsa (Delile) = Plantago maior L. 906.

messâsa = Plantago maior L. 906.

messeyle (Schweinf.) = Panicum repens L. 58.

metmân = Thymelaea hirsuta (L.) Endl. 665.

mintine = Chenopodium murale L. 273; = Cleome arabica L. 387.

mitibney = Polygonum equisetiforme Sibth. and Smith. 265.

mitteyn = Chenopodium opulifolium Schrader 272.

mitteyn (Schweinf.) = Chenopodium murale L. 273.

moghêra = Mollugo Glinus A. Rich. 326.

mooddeyt = Panicum Crus galli L. var. stoloniferum Schweinf. et Muschler 52.

morgam (Ascherson) = Maerua crassifolia Forsk. 389.

morgân (Del.) = Withania somnifera Dun. 846.

morghât (Klunz.) = Erodium triangulare (Forsk.) Muschler 558.

mormude (Ascherson) = Senecio aegyptius L. 1017.

morreyq (Ehrenberg) = Verbena supina L. 810.

mosrûr (Schweinfurth) = Cynomorium coccineum L. 683.

moswâk = Oldenlandia Schimperi T. Anders. 916; = Salvadora persica Garcin 729.

moswâk (Klunzinger) = Silene linearis Decsne 339.

motey (Forsk. Del.) = Phagnalon rupestre (L.) DC. 977.

motmna = Atriplex hastatum L. 276.

moudeyd (Schweinf.) = Boerhaavia repens L. var. diffusa Hook. fil. 317.

mu'asal (Ascherson) = Danthonia Forskâlei (Vahl) Trin. 101.

muddeyd (Ascherson) = Boerhaavia repens L. 317; = Caylusea canescens St. Hil. 438; = Cynanchum acutum L. 747.

muddsyd (Ascherson) = Convolvulus arvensis L. 767.

mufrad (Ascherson) = Nasturtium palustre DC. 401.

mugennine (Forsk.) = Haplophyllum tuberculatum (Forsk.) Adr. Juss. 585.

mukheyt = Cordia Gharaf Ehrenberg 782; = C. Myxa Linn. 780.

mukheyt rumy = Cordia crenata Del. 781.

mulley = Cressa cretica L. 760.

mulleygh = Frankenia pulverulenta L. 645.

mulleyh = Aeluropus repens (Desf.) Parl. 130; = Reaumuria mucronata Jaub. and Spach 651.

mulleyh (Ascherson-Muschler = Salicornia fruticosa L. 287.

mulleyh (Delile) = Salsola foetida Del. 299.

mulleyh (Forsk.) = Schanginia baccata (Forsk.) Moq. 291; = Sch. hortensis (Forsk.) Moq. 292.

mulleyh (generally) = Reaumuria hirtella Jaub. and Spach 651.

mulleyh (Schweinf.-Aschers., Muschler) = Mesembrianthemum nodiflorum L. 322.

murgheyt = Erodium bryoniaefolium Boiss. 562.

murgheyt (Wilkinson) = Erodium glaucophyllum (L.) L'Hérit. 561.

murrar (Schweinf.) = Centaurea Calcitrapa L. 1036.

murrâr (Ascherson) = Centaurea pallescens Del. 1038.

murrât ghazâl = Pennisetum dichotomum (Forsk.) Del. 65.

murreyr = Centaurea Calcitrapa L. 1036; = C. pallescens Del. var. brevicaulis (DC.) Boiss. 1038.

murreyr (Ascherson) = Launaea nudicaulis Hook. 1059; = Senecio coronopifolius Desf. 1017.

murreyr (Del.) = Picris Sprengeriana Lam. var. altissima Aschers. and Schweinf. 1052.

murreyr (generally) = Centaurea pallescens Del. 1038; = Launaea Cassiana (Jaub. and Spach) Muschler 1058.

murreyr (Muschler) = Senecio vulgaris L. 1016.

murreyr (Roth) = Farsetia aegyptiaca Turra Farset 420.

murreyrey-entîye (Schweinf.) = Launaea Cassiana (Jaub. and Spach) Muschler 1058.

museyhl (Ascherson) = Salsola vermiculata L. var. villosa (Del.) Moq. Tand. 299.

museyq (Ascherson) = Plantago albicans L. 907.

musseyss = Nicotiana glauca L. 856.

mustiân = Teucrium leucocladum Boiss. 837; = T. Polium L. 838.

mutteyn = Calendula aegyptiaca Pers. 1019.

na (generally) = Dactyloctenium aegyptium (L.) Willd. 109.

na' amîya = Euphorbia parvula Delile 605.

na' amîye = Euphorbia cornuta Pers. 603.

nabq (generally) = Zizyphus Spina-Christi Willd. 617.

nabûa-el-ard = Cistanche lutea Hoffmg. and Link 887.

na' eyme = Salvia spinosa L. 825.

na' îm (Forsk.) = Agrostis verticillata Vill. 90.

nakeysy = Matthiola livida DC. 399.

Nakhle el Dakar = Phoenix dactylifera L. (Male tree.) 187.

Nakhle el Entaîyia = Phoenix dactylifera L. (Female tree.) 187.

nam-nam (Schweinfurth) = Schouwia purpurea (Forsk.) Muschler; = Sch. purpurea (Forsk.) Muschler var. Schimperi Muschler 418.

namûl = Alternanthera achyranthoides Forsk. 314.

na' na' (Ascherson) = Ambrosia maritima L. 992; = Mentha Pulegium L. 820.

nashâssh-ell-clubân = Silene rubella L. 338.

nashshâsh-ed-dubbân (G. Roth) = Conyza aegyptiaca Ait. 967.

natash = Crotalaria aegyptiaca Benth. 472.

natash (Klunzinger) = Lavandula coronopifolia Poir. 818.

natne = Chenopodium ambrosioides L. 273.

nawa = Phoenix dactylifera L. (Seed.) 187.

nawaîyia = Phoenix dactylifera L. (Seed.) 187.

nedâwa (Forsk.) = Salsola inermis Forsk. 296.

nefâl (Ascherson) = Medicago litoralis Rohde 488.

nefîr = Datura Stramonium L. 852.

nefl = Medicago ciliaris Willd. 491.

nefl (generally) = Medicago hispida (Gaertn.) Urban 490.

nefl (Delile) = Melilotus indicus L. 494.

negd (Delile) = Elaeagnus hortensis M. Bieb. var. orientalis Schlechtd. 666.

negîl = Cynodon dactylon (L.) Pers. 103.

negîl (Ascherson) = Sporobolus spicatus (Vahl) Kunth 86.

negîl (Ascherson, Muschler) = Aeluropus repens (Desf.) Parl. 130.

negîl (Forskål) = Cyperus rotundus L. 173.

negîl beledy = Aeluropus repens (Desf.) Parl. 130.

negîl-el-sheytâny = Aeluropus repens (Desf.) Parl. 130.

negîl hanganeym (Klunzinger) = Aeluropus arabicus Steud. 131.

nêket-iblîss = Epilobium hirsutum L. 679.

nekhâlah (El-'Arish-Ascherson) = Paronychia arabica DC. 353.

nemeyshe (Forsk.) = Frankenia laevis L. var. revoluta Durand and Barr. 645.

nêsi = Aristida caloptila (Jaub. et Spach) Schweinf. 78.

nesî = Aristida plumosa L. 77.

netash (Schweinf.) = Crotalaria thebaica DC. 472.

netesh (Forsk., Delile) = Heliotropium luteum Poir. 786.

netesh (Schweinf.) = Crotalaria aegyptiaca Benth. 472.

nifl = Melilotus elegans Salzm. 494.

nifl (Aschers.) = Melilotus indicus L. 494; = Trigonella maritima Delile 483.

nîl = Indigofera argentea L. 511.

nîl (Schweinfurth) = Crozophora obliqua (Vahl) A. Juss. 594; = C. plicata (Vahl) A. Juss. 592.

nintîq (G. Roth) = Melilotus sulcatus Desf. 493.

nirish = Arisarum vulgare Targ.-Tozz. 192.

nishîl (Forsk.) = Cynodon dactylon (L.) Pers. 103.

nisseile = Panicum repens L. 58.

niye = Delphinium Ajacis L. 371.

niyeh = Nigella sativa L. 371.

no'emanyia (Forskål) = Matthiola livida DC. 399.

no'emêh = Panicum verticillatum L. 61.

no-manîye (Forsk.) = Euphorbia cornuta Pers. 603.

noqud = Odontospermum pygmaeum Benth. and Hook. 990.

nû-'em (Ascherson) = Cressa cretica L. 760.

nuffah (von Samson) = Cardiospermum Halicacabum L. 614.

nukd = Reichardia tingintana Roth 1065.

nukhâla (Brullus) = Paronychia arabica DC. 353.

nuqd = Odontospermum graveolens Sch. Bip. 991.

nuqqeyd (Ascherson) = Odontospermum graveolens Sch. Bip. 991.

nussâq (Schweinfurth, Muschler) = Forskalia tenacissima L. 254.

nusseyle = Lolium rigidum Gaud. var. compressum (Boiss. et Heldr.) Boiss. 151.

nusseyle (Schweinf., Muschler) = Lolium rigidum Gaud. 151.

okrush = Echiochilon fruticosum Desf. 793.

'olûb (generally in the Fayûm) = Cyperus alopecuroides Rottb. 167.

olub-es-sultân = Cyperus alopecuroides Rottb. 167.

omm-muknâna (Ascherson) = Thymelaea hirsuta (L.) Endl. 665.

omshôt = Panicum Crus galli L. var. Sieberiana Aschers. et Schweinf. 52.

omshut = Panicum Crus galli L. var. Sieberiana Aschers. et Schweinf. 52.

'onsegl = Iris Sisyrinchium L. 237.

'onsol (Wilkins.) = Hyacinthus flexuosus (Boiss.) Baker 225.

'onssul (Schweinf.) = Asphodelus microcarpus Viv. 229.

'oreydc = Scorpiurus muricata L. 529.

'orf-ed-dîk = Amarantus caudatus L. 306.

'orq angibâr = Statice Limonium L. 724.

'orqsûs = Glycirrhiza glabra L. 528.

'osfur = Carthamus tinctorius L. (the flowers) 1042.

'oshâr = Calotropis procera (Ait.) R. Br. 751.

qabad (Aschers.) = Medicago sativa (L.) Döll. 486.

qabd = Lotus arabicus L. 506.

qabd (Wilkinson) = Lotus glinoides Del. 506.

qadab = Medicago sativa (L.) Döll. 486.

qalâm = Saccharum biflorum Forsk. 40.

qamâ'ila (G. Roth) = Matricaria aurea (L.) Boiss. 1010.

qameyleh = Polycarpaea repens (Forsk.) Aschers.-Schweinf. 350.

qammeysh = Saccharum biflorum Forsk. 40.

qantaryân = Erythraea ramosissima Pers. 732.

qantaryûn = Erythraea ramosissima Pers. 732.

qara' (generally) = Cucurbita maxima Duchesne 941.

qarad = Acacia arabica Willd. var. nilotica (Forsk.) Aschers.-Schweinf. 460.

qara' dabbe = Lagenaria vulgaris Seringe 934.

qara' drâf (Schweinfurth) = Lagenaria vulgaris Seringe 934.

qara'-ed-derûf = Lagenaria vulgaris Seringe 934.

qara' kûsa = Cucurbita Pepo L. 941.

qara' maghreby = Cucurbita Pepo L. 941.

qara' malty = Cucurbita maxima Duchesne 941.

qarâmâny (generally) = Zygophyllum coccineum L. 578.

qarambûsh (Ascherson) = Astragalus alexandrinus Boiss. 523.

qara' stambuly = Cucurbita maxima Duchesne 941.

qara' tavîl = Lagenaria vulgaris Seringe 934.

qardab = Polygonum Bellardi All. 264.

qarnâ (Wilkinson) = Erodium arborescens (Desf.) Willd. 561; = E. cicutarium (L.) L'Hérit. 556.

qarnâ = Erodium triangulare (Forsk.) Muschler 558.

qarna (Muschler) = Geranium molle L. 555.

qarn-el-ghazâl (Forsk.) = Lotus villosus Forsk. 508.

qarn-el-kebsh (Ascherson) = Tetragonolobus palaestinus Boiss. 509.

qarn-el-khîliq = Heleocharis caduca (Delile) Schult. 175.

qarrâbis = Apium graveolens L. 695.

qartan (Schweinfurth) = Stachys aegyptiaca Pers. 831.

qarûn = Papaver rhoeas L. 376.

qasab (Del.) = Arundo Donax L. 115.

qash = Eragrostis bipinnata (L.) Muschler 128.

qasûkh (Forsk.) = Pithyranthus tortuosus Benth. and Hook. 697.

qasûkh = Pithryranthus triradiatus (Hochst.) Aschers. and Schweinf. 697.

qataf = Atriplex tataricum L. 277.

qataf (Aschers.-Schweinf.) = Schanginia hortensis (Forsk.) Moq. Tand. 292.

qataf (generally) = Atriplex Halimus L. var. Schweinfurthii Boiss. 280.

qatba = Tribulus macropterus Boiss. 574.

qatîf = Jussiaea repens L. 680.

qattâ faqqûs = Cucumis Melo L. var. Chate (L.) Naud. 937.

qatuna (Muschler) = Plantago stricta Schousb. 913.

qawûn = Cucumis Melo L. 937.

qayan (Forsk.) Jasminum officinale L. 730.

qbêda = Anastatica hierochnutica L. 404.

qeĥawân (Forsk.) = Chrysanthemum coronarium L. 1008.

qelâwîl (Ascherson) = Sonchus oleraceus L. 1062.

qeleyqela (Sickenberger) = Spergula flaccida Aschers. 343.

qerqeydân = Abutilon bidentatum Hochst. 632; = A. denticulatum Fres. 632.

qerqeydânîy = Abutilon muticum (Del.) Webb. 633.

qerillah = Sinapis arvensis L. 412.

qerny (Schweinfurth) = Astragalus bombycinus Boiss. 522.

qeseysa = Leptaleum filifolium DC. 423.

qesîkh (Ascherson) = Pithyranthus tortuosus Benth. and Hook. 697.

qesûm (Forsk.) = Achillea Santolina L. 1007.

qesûm gebely (Forsk.) = Achillea fragrantissima (Forsk.) Sch. Bip. 1007.

qezâze = Stellaria media (L.) Cyrill. 342.

qhamîs el Bint el Malek = Clematis flammula L. 364.

qillâm = Zygophyllum album L. 578.

qinêbra = Carrichtera annua (L.) Aschers. 418.

qir'î = Anschusa hispida Forsk. 796.

qirî lisân-el-na'ga = Anchusa aggregata Lehm. 796.

qoddah = Crozophora plicata (Vahl) A. Juss. 592.

qoddeys (Ascherson) = Urospermum picroides F. W. Schmidt 1050.

qordob = Polygonum Bellardi All. 264.

qoreyb = Cyperus articulatus L. 171.

qoreykh (Schweinf.) = Cyperus auricomus Sieb. var. subalatus (Boeckeler) Aschers. and Schweinf. 171.

qoreyn = Astragalus hispidulus DC. 521; = A. hamosus L. 522.

qoreyn (Ascherson) = Hypecoum deuteroparviflorum Fedde 381.

qoreyn (Wady-el-'Arish, Ascherson) = Malcolmia aegyptiaca Spreng. var. linearis Coss. 405.
qoreys = Urtica pilulifera L. 252.
qoreytah (Schweinf.-Muschler) = Marsilia aegyptiaca Willd. 5.
qoreyyitah (Delile) = Marsilia aegyptiaca Willd. 5.
qorrat-el-aïn = Nasturtium fontanum Ascherson 400.
qorreys (Forsk.) = Senecio coronopifolius Desf. 1017.
qòrt (Schweinf.) = Trifolium resupinatum L. 499.
qort (Aschers.) = Trigonella maritima Delile 483.
qortom = Carthamus tinctorius L. 1042; = C. tinctorius L. var. inermis Schweinf. 1042.
qoseyr = Thalassia Hemprichii (Ehrenbg.) Aschers. 29.
qotâba = Tribulus macropterus Boiss. 574.
qotn = Gossypium anomalum Wavra and Peyr. 637; = G. arboreum L. 638; = G. barbadense L. 637; = G. herbaceum L. 838.
qotn-esh-sheger = Gossypium barbadense L. 637.
qottûn = Colchicum Guessfeldtianum Aschers. and Schweinf. 208.
qseyba = Panicum coloratum L. 59.
qsseyba = Panicum repens L. 58.
quasab = Pennisetum americanum (L.) K. Schum. 64.
quataf = Atriplex portulaccoides L. 278.
qullam = Halocnemon strobiliaceum M. Bieb. 285.
qullâm (Ascherson) = Zygophyllum album L. 578.
qullâm (generally) = Zygophyllum album L. 578.
qullûm = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.
qumburr (Schweinf., Klunz.) = Ifloga spicata Sch. Bip. 973.
qumely (Delile) = Torilis neglecta Roem. and Schult. 714.
qumeydy (Ascherson) = Matricaria aurea (L.) Boiss. 1010.
qumeyley = Torilis neglecta Roem. and Schult. 714.
qumeyly = Salsola inermis Forsk. 296.
qunfude (Ascherson) = Anagallis arvensis L. 720.
qurbayân (Muschler) = Anthemis deserti Boiss. 1002.
qureidûn-aswad = Astragalus Schimperi Boiss. 518.
qureys (Ascherson) = Elaeagnus hortensis M. Bieb. var. orientalis Schlechtd. 666.
qurt = Medicago litoralis-Rohde 488.
qurt (Forsk.) = Melilotus indicus L. 494.
qûs (Ascherson) = Carthamus glaucus M. B. var. alexandrinus Boiss. 1041.
quseb = Panicum turgidum Forsk. 57.
quteyba (Ascherson) = Erythraea ramosissima Pers. 732.
quteyh (Schweinf.) = Polygonum plebejum R. Br. 264.
quudab = Polygonum equisetiforme Sibth. and Smith 265.
quzzab = Polygonum equisetiforme Sibth. and Smith 265.

ra'al = Salvia aegyptiaca L. 827.
ra'al (Ascherson) = Helianthemum Lippii (L.) Pers. 656.
rabbûl (generally) = Pulicaria undulata DC. 987.
rabd (Forsk.) = Odontospermum graveolens Sch. Bip. 991.
rahâb (Schweinfurth) = Heliotropium arbaïnense Fresen. 787.
râk = Salvadora persica Garcin. 729.

râkkar (Schweinfurth) = Salvadora persica Garcin. 729.
ralah (Wilkinson) = Helianthemum Lipii (L.) Pers. 656.
raqmeh (Ascherson) = Malva nicaeensis All. 626.
raqmeyh = Malva aegyptia L. 626.
raqrâq (Forsk., Delile) = Melilotus indicus L. 494.
ra'râ' = Gnaphalium indicum L. 980; = G. pulvinatum Del. 979.
ra'râ (Ascherson) = Pulicaria inuloides DC. 988.
ra'râ (G. Roth) = Pulicaria crispa Benth. and Hook. 988.
ra'râ' (Schweinfurth) = Gnaphalium luteo-album L. 978.
ra'râ'ayûb (Forsk., Schweinf.) = Pulicaria arabica Cass. 986.
rasaf = Capparis galeata Fres. 391.
rehâma (Schweinfurth) = Convolvulus lanatus Vahl. 764; = Heliotropium luteum Pois. 786.
rekhâm (Ascherson) = Convolvulus lanatus Vahl. 760.
resah = Calligonum comosum L'Hérit. 257.
reshâd = Lepidium sativum L. 425.
reshâd (Delile) = Coronopus niloticus (Delile) Spreng. 428.
reshâd-el-bahr (Delile) = Cakile maritima Scop. 432.
reshâd-el-barr (Delile) = Enarthrocarpus lyratus (Forsk.) DC. 433.
reshâd gebely (Delile) = Savignya parviflora (Del.) Webb. 417.
retem = Pennisetum dichotomum (Forsk.) Del. 65; = Panicum turgidum Forsk. 57; = Retama Raetam Webb. var. Duriaei Letourn. 473.
retem (Forsk.) = Atriplex coriaceum Forsk. 280.
retem (generally) = Retama Raetam Webb. 473.
retem behâm (Forsk.) = Retama Raetam Webb. 473.
reykhâ = Robbairea prostrata (Del.) Boiss. 347.
reynish = Arisarum vulgare Targ.-Tozz. 192.
ribbîn (Schweinfurth) = Cotula anthemoides L. 1014.
ribyân = Anthemis Cotula L. 1004; = A. pseudocotula Boiss. 1005.
ribyân (Ascherson) = Anthemis melampodina Del. 1003.
ribyân = Cotula cinerea Del. 1015.
ribyân-betâ-er-rîf (Klunz.) = Anthemis retusa Del. 1004.
righ-hamâma = Lythrum hyssopifolia L. 668.
rigl-el-ghorab (Ascherson) = Reseda decursiva Forsk. 440.
rigl-el-herbâyeh (Delile) = Dactyloctenium aegyptium (L.) Willd. 109.
riglet-el-ghorab (Muschler) = Coronopus squamatus (Forsk.) Aschers. 427.
riglet-el-ghorab (Muschler) = Roemeria dodecandra (Forsk.) Stapf 379.
riglet-iblîs = Euphorbia aegyptiaca Boiss. 602.
rigl-hammâma (Schweinfurth) = Ammannia baccifera (L.) Koehne 671; = A. baccifera (L.) Koehne var. aegyptiaca (Willd.) Koehne 671.
rîhân (generally) = Ocimum basilicum L. 816.
rîhe (Klunz.) = Linaria aegyptiaca (L.) Dum. 865.
rîheh = Haplophyllum tuberculatum (Forsk.) A. Juss. 585.
rîh-el-bard = Cleome droserifolia Del. 386.
rilyân (generally) = Anthemis retusa Del. 1004.
rind (Schweinfurth, Muschler) = Danthonia Forskâlei (Vahl) Trin. 101.

rishân-fâssed (Schweinf.) = Erigeron crispus Pourr. 965.

risu = Calligonum comosum L'Hérit. 257.

roghat (Forsk.) = Atriplex Halimus L. var. Schweinfurthii Boiss. 280; = Stachys aegyptiaca Pers. 831.

roghl = Atriplex leucocladum Boiss. 279; = Heliotropium luteum Poir. 786.

roghl (Wilkinson) = Stachys aegyptiaca Pers. 831.

rookêbeh (Schweinf.) = Panicum muticum Forsk. 56.

rookeiebe = Panicum muticum Forsk. 56.

roqeyqa (Forskål, Delile) = Gypsophila Rokejeka Del. 331.

rotab = Phoenix dactylifera L. (The unripe fruit.) 187.

rotreyt (generally) = Zygophyllum coccineum L. 578.

rught (generally) = Atriplex leucocladum Boiss. 279.

rukbet-el-'agus = Emex spinosus L. 258.

rukeyb (Schweinf.) = Andropogon annulatus Forsk. 45.

rumey (Wilkinson) = Centaurea Lippii L. 1034.

rummân = Punica Granatum L. 673.

sa'ad = Cyperus badius Desf. 172; = C. capitatus Vandelli 168.

sa'ad (Schweinf.-Muschler) = Cyperus esculentus L. 174; = C. longus L. 172.

sa'ad (generally) = Cyperus rotundus L. 173.

sa-'adân = Neurada procumbens L. 455.

sa'ad-el-homâr = Cyperus rotundus L. 173.

sa'atar = Thymus Bovei Benth. 821.

sa'atar (Ascherson) = Thymus capitatus (L.) Link 822.

sa'atar hendy (Ascherson) = Ocimum basilicum L. 816.

sabat (Forsk.) = Pulicaria crispa Benth. and Hook. 988.

sabbâgh (Klunzinger) = Crozophora obliqua (Vahl) A. Juss. 594.

sabbâgha = Phytolacca americana L. 319.

sablangâro (Ascherson) = Cichorium pumilum L. 1046.

sabta (Forsk.) Halocnemon strobiliaceum M. Bieb. 285.

sabta (Ascherson) = Suaeda vera Forsk. 289.

sabun' afrît (Ascherson) = Gnaphalium luteo-album L. 978.

sabûn 'arab (Ascherson) = Samolus Valerandi L. 721.

sabûngheyt = Anagallis arvensis L. 720.

sâbûn-gheyt (Schweinfurth) (generally) = Euphorbia Peplus L. 606.

sabûs ssabbarâs (Schweinf., Muschler) = Avena fatua L. 99.

sa 'dey (Delile) = Eclipta alba Hassk. 994.

sadeyd (Klunzinger) = Reichardia tingitana Roth 1065.

sadhâb (Muschler) = Ruta chalepensis L. 585.

sa'eydeh (Ehrenberg) = Lathyrus hirsutus L. 547.

safiah = Panicum glaucum L. 60.

sâfira (Schweinf.) = Cleome chrysantha Decaisne 387.

safîry = Diplotaxis acris (Forsk.) Boiss. 414.

safsâf (generally) = Salix Safsâf Forsk. 242.

safsâf beledy = Salix Safsaf Forsk. 242.

safsâf rûmy = Salix babylonica L. 243.

safûn = Diplachne fusca (L.) Beauv. 113.

saggar (Schweinfurth) = Morettia philaeana DC. 403.

sahanûn (Klunzinger, Schweinf.) = Lycium arabicum Schweinf. 849.

sahanûn (Klunzinger) = Nitraria retusa (Forsk.) Aschers. 575.

sakham = Aristida acutiflora Trin. et Rupr. 79.

sakham (Ascherson) = Sporobolus spicatus (Vahl) Knuth 86.

salam (generally) = Acacia Ehrenbergiana Hayne 461.

salfa = Polygonum serrulatum Lag. 265.

samâr helu = Cyperus alopecuroides Rottb. 167.

samh (generally) = Mesembrianthemum Forskålii Hochst. 322.

samleh = Acacia Ehrenbergiana Hayne 461.

samma (generally) = Lolium perenne L. 152.

sammah (Schimper) = Crozophora obliqua (Vahl) A. Juss. 594.

sammah (Ascherson) = Lolium rigidum Gaud. 151.

sammah (Muschler) = Sporobolus pungens (Schreb.) Kunth 87.

sammâr = Cyperus pygmaeus Rott. 167; = Juncus acutus L. 202; = J. maritimus Lam. var. arabicus Aschers. and Buchenau 202.

sammâr (Ascherson-Muschler) = Scirpus litoralis Schrad. 182.

sammat (Schweinf.-Muschler) = Elionurus hirsutus (Forsk.) Munro 42.

sammur (Schweinfurth-Klunzinger) = Acacia spirocarpa Hochst. 461.

sant = Acacia arabica Willd. var. nilotica (Forsk.) Aschers.-Schweinf. 460.

sanûf (Ehrenberg) = Phagnalon Barbeyanum Ascherson and Schweinf. 977.

sâq-el-hamâm = Echium sericeum Vahl 804.

saqukh (Schweinfurth) = Pithyranthus tortuosus Benth. and Hook. 697.

saqukh = Pithyranthus triradiatus (Hochst.) Aschers. and Schweinf. 697.

sârad = Carex divisa Huds. 185.

sar-el-fâr (Forsk.) = Panicum glaucum L. 60.

sargam (Dongola = Lens esculenta Moench 544.

sa'tadr-el-homar (Ehrenberg) = Varthemia candicans Boiss. 984.

satme (Klunzinger) = Daemia tomentosa (L.) Vatke 746.

sawâs = Atraphaxis spinosa L. 262.

sebakh (Ascherson) = Cressa cretica L. 760.

sêdeb = Ruta chalepensis L. 585.

sé'êd (Ascherson, Muschler) = Cyperus conglomeratus Rottb. 168.

sefsuf = Aristida brachypoda Tausch. 77.

segettemâm = Portulaca oleracea L. 327.

sekrân = Chenopodium murale L. 273; = Cotula cinerea Del. 1015; = Heliotropium europaeum L. var. tenuiflorum Boiss. 786; = Hyoscyamus pusillus L. 854.

sekrân (Forsk., Del.) = Heliotropium europaeum L. 785.

sekrân (generally) = Withania somnifera Dun. 846; = Hyoscyamus muticus L. 853.

selem = Acacia Ehrenbergiana Hayne 461.

selgam = Brassica rapa L. 410.

selîkh (Schweinf.) = Reboudia microcarpa (Boiss.) Coss. 435.

selq = Aizoon canariense L. 325.

semeysema = Glaucium corniculatum Curt. 380.

semm-el-fâr (Del.) = Hyoscyamus muticus L. 853.

semm-el-fâr (Ehrenberg) = Withania somnifera Dun. 846.

semm-el-fîr = Datura Stramonium L. 852.

semniâ seteyn (Roth) = Samolus Valerandi L. 721.

semsem = Sesamum indicum L. 885.

senâ = Cassia acutifolia Delile 467; = C. obovata Collad. 466.

senâ-mekky = Cassia obovata Collad. 466.

senâ-mekky (generally) = Cassia acutifolia Delile 467.

senâ-sa'îdy = Cassia acutifolia Delile 467.

sendeb = Ruta chalepensis L. 585.

serageha = Crepis radicata Forsk. 1068.

serakôn = Cyperus auricomus Sieb. 170; = C. auricomus Sieb. var. subulatus (Boeckeler) Aschers. and Schweinf. 171.

serakôu = Cyperus compressus L. 170.

serîns (Schweinfurth) = Cichorium pumilum L. 1046.

serr = Asparagus stipularis Forsk. var. brachyclados Boiss. 231.

sête (Schweinf.-Muschler) = Schanginia hortensis (Forsk.) Moq. Tand. 292.

seyâl = Acacia tortilis Hayne 462.

seylâl (Delile) = Acacia Seyal Delile 461.

seyfûn = Agropyrum elongatum (Host) P. Beauv. 154; = A. junceum (L.) P. Beauv. var. Sartorii Boiss. and Heldr. 153.

seyfûn (Ascherson) = Diplachne fusca (L.) Beauv. 113.

seyl = Beta vulgaris L. var. moritima (L.) Boiss. 274.

seysebân = Sesbania aegyptiaca Pers. 527.

sfeyra (Ascherson) = Linaria Haelava Chav. 867.

sfeyr-atân = Cleome chrysantha Decaisne 387.

sha'arân (Schweinf.) = Agathophora alopecuroides (Del.) Bunge 303.

sha'arân (Wilkinson) = Paronychia lenticulata (Forsk.) Ascherson and Schweinf. 354.

shâ'araysh = Aristida plumosa L. 77.

sha'ar-el-'agûz = Urtica urens L. 251.

shâb-el-hyle (Schweinf.) = Mirabilis Jalapa L. 316.

shadjeret-el-gemâl (Ascherson) = Salvia spinosa L. 825.

shafella (Roth) = Capparis spinosa L. var. rupestris (Sibth.) Boiss. 391.

shafella (Klunzinger) = Glossonema Boveanum Decsne. 744 (the fruit).

shafshûf = Aristida lanata Forsk. 78.

shahtarag = Fumaria judaica Boiss. 384; = F. parviflora Lam. 383.

sha'îr-el-fâr = Phalaris minor Retz. 71; = Aegilops bicornis (Forsk.) Jaub. et Spach 156.

sha'ir-el-dîb (Ehrenberg) = Hordeum murinum L. 160.

shaïr-el-ghul (Ascherson) = Avena fatua L. 99.

shakhûkh = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.

shamar = Foeniculum capillaceum Gillb. 704.

shamar-el-gebel = Malabaila suaveolens Coss. 709.

shamar-el-gebel (Ascherson) = Orlaya maritima Koch. 710.

shanâreq (Zarb.) = Cannabis sativa L. 249.

shandakûk = Trigonella hamosa L. 482.

shaqâqîl (Forsk.) = Eryngium campestre L. 689.

sharâneq (Forsk.) = Cannabis sativa L. 249.

sha-'r-el-qird = Scirpus parvulus Roem. et Schult. 179.

shatreyq = Fumaria parviflora Lam. 383.

shawârib 'antar (Schweinf.) = Carthamus lanatus L. 1041.

shawâsh = Panicum obtusifolium Del. 56.

sheba = Artemisia arborescens L. 1013.

shebb-el-leyl (Forsk. Delile) = Mirabilis Jalapa L. 316.

shebbet = Hibiscus Trionum L. 634.

shebet (generally) = Anethum graveolens L. 707.

shebet-el-gebel = Pithyranthus tortuosus Benth. and Hook. 697.

shebît = Anethum graveolens L. 707.

shedîd = Ephedra alte C. A. Meyer 7; = Indigofera paucifolia Del. 511.

shedîd (generally) = Ceruana pratensis Forsk. 969.

shedjret-el-ma'iza (Ascherson) = Ifloga spicata Sch. Bip. 973.

shegâra = Matthiola humilis DC. 398

shegeret-el-bayyadîn = Atriplex leucocladum Boiss. 279.

shegeret-el-gemel (Forsk. Ehrenberg.) = Danthonia Forskâlei (Vahl) Trin. 101.

shegeret-el-ghazâl (Forsk., Del.) = Salvia aegyptiaca L. 827.

shegeret-el-hanash (Ascherson) = Euphorbia Paralias L. 608.

shegeret-el-hummus (Roth) = Zilla spinosa (Forsk.) Prantl. 431.

shegeret-el-libbeyne = Launaea glomerata Hook. 1061.

shegeret-el-mutene = Chenopodium murale L. 273.

shegeret-en-na'-guch (Forsk.) = Aerva tomentosa Forsk. 312.

shegeret-er-rîh = Haplophyllum tuberculatum (Forsk.) Adr. Juss. 585.

shegeret-es-sakrân (Roth) = Hyoscyamus muticus L. 853.

shegeret-es-santîn (Mohammed) = Amarantus graecizans L. 309.

shegeret-wâhash = Cleome arabica L. 387.

shegret-el-arueb (Forsk.) = Arnebia tinctoria Forsk. 802.

shelîl (Schweinfurth; Klunzinger) = Statice axillaris Forsk. 725.

shemâm = Cucumis Melo L. 937.

sherangêb (Schweinfurth) = Dolichos Lablab L. 551.

sherk-falek (Delile) = Ipomoea palmata Forsk. 771.

sherk-falek = Passiflora coerulea L. 660.

sheydeyd (Forsk.) = Reichardia tingintana Roth. 1065.

sheytanîya (Ascherson) = Ammi majus L. 699.

shibrim = Convolvulus Hystrix Vahl 763.

shibriq = Convolvulus Hystrix Vahl. 763.

shibriq (Ascherson) = Fagonia arabica L. 583.

shideyd = Ceruana pratensis Forsk. 969.

shîh (generally) = Artemisia Herba alba Asso. 1013.

shikâ'a = Fagonia glutinosa Del. 580.

shikh-shâkh (Ascherson) = Papaver somniferum L. 378.

shikurîyey (Forsk. Del.) = Cichorium endivia L. 1047.

shilshillâwy = Prosopis Stephaniana (Willd.) Spr. 457.

shiltâm = Enarthrocarpus lyratus (Forsk.) DC. 433.

shiltâm (Roth) = Eruca sativa Lam. 416.

shimam (Schweinfurth) = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.

shinan (Schweinf., Klunzinger, Muschler) = Arthrocnemon glaucum (Del.) Unger-Sternb. 286.

shiqra (Ascherson) = Echiochilon fruticosum Desf. 793.

shirtâm = Enarthrocarpus lyratus (Forsk.) DC. 433.

shirtâm (Ascherson) = Brassica Tournefortii Gouan 411; = Enarthrocarpus pterocarpus DC. 434; = E. strangulatus Boiss. 434.

shîrtêm (Schweinf.) = Enarthrocarpus lyratus (Forsk.) DC. 433.

shôk = Centaurea Calcitrapa L. 1036; = Salsola Kali L. 296.

shôk (Del.) = Cirsium syriacum (L.) Gaertn. 1027.

shôk ahmar = Salsola Kali L. 296.

shôk 'antâr = Carduus argentatus L. 1026.

shôk'antâr (Aschers.) = Cirsium syriacum (L.) Gaertn. 1027.

shôk-ed-dâb (Schimper) = Blepharis edulis Pers. 903.

shôk-ed-dâb' (Schweinfurth) = Trichodesma africanum (L.) R. Br. 789.

shôk-el-banash (Forsk.) = Neaea mucronata (Forsk.) Aschers. and Schweinf. 300.

shôk-el-ghazâl (Ascherson) = Aristida pungens Dsf. 80; = Silybum Marianum (L.) Gaertn. 1029.

shôk-el-gemel (Forsk.) = Echinops spinosus L. 1022.

shôk hannâsh (Schweinf.) = Cirsium syriacum (L.) Gaertn. 1027.

shôk-el-hannâsh (Schweinf.) = Onopordon Sibthorpianum Boiss. and Heldr. var. alexandrinum Boiss. 1030.

shôk-el-homâr (Ascherson) = Capparis spinosa L. 391.

shôk ghennêm = Abutilon Avicennae Gaertn. 633.

sholtâm = Enarthrocarpus lyratus (Forsk.) DC. 433; = E. strangulatus Boiss. 434.

shoosh = Panicum turgidum Forsk. 57.

shora = Avicennia officinalis L. 813.

showâsh = Panicum colonum L. 53.

shtenârah (Delile) = Posidonia oceanica (L.) Del. 13.

shu'air (Muschler) = Lepturus incurvatus Trin. 157.

shubbêt = Panicum verticillatum L. var. ambigua Guss. 61.

shubbey (Ascherson) = Xanthium strumarium L. 993.

shubbeyt = Anchusa aegyptiaca (L.) DC. 797; = Neurada procumbens L. 455.

shubruq (in Upper Egypt) = Convolvulus Hystrix Vahl. 763.

shullcyk = Oryza australis (R. Br.) A. Br. 68.

shuqara = Matthiola livida DC. 399.

shûsh-el-garîye (Ascherson) = Suaeda vera Forsk. 289.

sibânakh = Spinacia glabra Mill. 275.

sibl-el-fâr (Schweinfurth) = Erigeron crispus Pourr. 965.

sibl-el-mâ'iz = Cyperus rotundus L. 173.

sidr = Zizyphus Spina-Christi Willd. 617.

sifân (Aschers.-Muschler) = Andropogon annulatus Forsk. 45.

sileys = Urospermum picroides F. W. Schmidt 1050.

sileysele (Schweinfurth) = Paracaryum Boissieri Schweinf. 790.

silîs (Ascherson) = Cichorium endivia L. 1047.

silîs = Urospermum picroides F. W. Schmidt 1050.

sill = Imperata cylindrica (L.) P. Beauv. 39.

sille (generally) = Zilla spinosa (Forsk.) Prantl 431.

silq (generally) = Beta vulgaris L. var. maritima (L.) Boiss. 274.

simlin = Canna indica L. 240.

simsim = Sesamum indicum L. 885.

sîrr = Salsola Volkensii Schweinf. and Aschers. 296; = Zilla spinosa (Forsk.) Prantl. 431.

sirr (Ascherson) = Noaea mucronata (Forsk.) Aschers. and Schweinf. 300.

sîrr (Forskål) = Gymnocarpus decander Forsk. 355; Gypsophila Rokejeka Del. 331.

sirrâye (Ascherson) = Zilla spinosa (Forsk.) Prantl. 431.

sirr-el-ward (Schweinf.) = Sphaeranthus suaveolens DC. 971.

sitt-el-hosn (generally) = Ipomoea palmata Forsk. 771.

sjurrai = Oryza australis (R. Br.) A. Br. 68.

slîh (Ascherson) = Erucaria uncata Boiss. 436.

slîh = Launaea angustifolia Muschler 1059.

slîhet-el-gemâl (Ascherson) = Launaea tenuiloba Muschler 1058.

sofeyr = Cassia Sophora L. 465.

sofeyrâ = Isatis microcarpa J. Gay. 428.

sommâr (Muschler) = Panicum repens L. 58.

sommâr = Panicum repens L. var. leiogonum (Del.) Schweinf. 58.

sommeyr (Schweinf.) = Rottboellia compressa Linn. f. var. fasciculata Hack. 42.

soomâr dakkr = Panicum geminatum Forsk. 55.

sorbeyh (Ehrenberg) = Senecio aegyptius L. 1017.

ssabtha (?) = Carlina involucrata Poir. var. Letourneuxii Aschers. and Schweinf. 1023.

ssafoon = Panicum geminatum Forsk. 55.

ssaffâr = Panicum turgidum Forsk. 57.

ssegger-el-gerey (Schweinf., Muschler) = Nicotiana glauca L. 856.

ssemeh (Schweinf.) = Mesembrianthemum Forskålii Hochst. 322.

ssemh = Mesembrianthemum nodiflorum L. 322.

ssimret-el-ajûn (Schweinfurth) = Onobrychis Crista galli Lam. 534.

ssletêni = Fagonia cahirina Boiss. 581; = F. cretica L. 581.

ssoomâr = Panicum geminatum Forsk. 55.

ssultâm = Enarthrocarpus pterocarpus DC. 434; = E. strangulatus Boiss. 434.

stemma lekka (Schweinf.) = Laggera aurita Sch. Bip. 970.

suai = Asphodelus microcarpus Viv. 229.

subb-el-kelb = Astragalus Sieberi DC. 524.

suêd (Ascherson) = Frankenia laevis L. var. revoluta Durand and Barr. 645.

sueyd = Suaeda vera Forsk. 289; = S. vermiculata Forsk. 290.

sueye = Atraphaxis spinosa L. 262.

sufrâ = Vahlia viscosa Roxb. 450.

sugget (Schweinfurth) = Lindenbergia sinaica Benth. 873.

summâr = Juncus maritimus Lam. var. arabicus Aschers. and Buchenau 202.

sûmmâr enteia (Schweinf.) = Panicum repens L. 58.

suntâr = Chenopodium murale L. 273.

surr = Anacyclus alexandrinus Willd. 1006.

surret-el-kebsh (Ascherson) = Anthemis retusa Del. 1004; = Anacyclus alexandrinus Willd. 1006; = Hedypnois rhagadioloides Willd. 1049.

surret-en-na'ge (Forsk.) = Centaurea glomerata Vahl. 1039.

sûsan = Pancratium aegyptiacum M. Roemer 234; = P. maritimum L. 235.

suum-el-ferrukh = Withania somnifera Dun 846.

ta'âm-el-arneb Phagnalon rupestre (L.) DC. 977.

ta'asîna (Ascherson) = Aerva tomentosa Forsk. 312.

tabb'ainy = Calendula aegyptiaca Pers. 1019.

tabghâ = Nicotiana Tabacum L. 855.

tabshanqîq = Tephrosia apollinea (Del.) DC. 513.

tabua = Nicotiana Tabacum L. 855.

ta 'êlbe (Schweinfurth, Muschler) = Salvia spinosa L. 825.

taftaf (Gaillaud) = Cardiospermum Halicaccabum L. 614.

tafwa (Junker) = Haloxylon articulatum Bunge 294.

tagâr = Pulicaria crispa Benth. and Hook. 988.

taghagha (Klunzinger) = Morettia philaeana DC. 403.

tahama (Klunz.) = Schanginia baccata (Forsk.) Moq. 291; = Sch. hortensis (Forsk.) Moq. Tand. 292.

talh (generally) = Acacia Seyal Delile 461.

talh (Ascherson) = Acacia tortilis Hayne 462.

tamalîka = Gynandropsis pentaphylla DC. 388.

tamr = Phoenix dactylifera L. (The ripe fruit) 187.

tamr-el-fu'âd (Figari) = Elaeagnus hortensis M. Bieb. var. orientalis Schlechtd. (Fruit.) 666.

tamr-el-hina frengi = Reseda odorata L. 441.

tamr-el-hinnâ = Lawsonia inermis L. 672.

tarâthît (Schweinfurth) = Cistanche lutea Hoffmg. and Link 887.

tarbûsh-el-ghorâb = Convolvulus arvensis L. 767.

tarfâ (generally) = Tamarix nilotica (Ehrenbg.) Bunge 648.

tarfâ = Tamarix tetragyna Ehrenberg 648.

tartiff = Helianthus tuberosus L. 997.

tartîr = Mesembrianthemum Forskâlii Hochst. 322; = Salsola foetida Del. 299; = Zygophyllum coccineum L. var. berenicense (Schweinf.) Muschler 578.

tartîr (Ascherson) = Schanginia baccata (Forsk.) Moq. 291.

tartîr (generally) = Zygophyllum album L.; = Z. coccineum L. 578.

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Errata and Corrigenda.

Page	Line from top	Description
78	34	For „Arabica“ read „Arabia“.
124	24	For „negastachya“ read „megastachya“.
132	15	For „Kenû'is“ read „Kenâ'is“.
135	25	Delete „Festuca inops“.
174	38	For „E.“ read „H.“.
174	40	For „E.“ read „H.“.
185	33	Delete the whole line.
210	23	For „Salib.“ read „Salisb.“.
243	17	Adde „Caucasia and Asia“.
260	14	For „Kloshiana“ read „Klotzschiana“.
264	23	For „B. Br.“ read „R. Br.“.
336	18	For „Tropolitania“ read „Tripolitania“.
339	1	For „432“ read „432a“.
339	17	For „433“ read „433a“.
350	35	For „bassni“ read „basin“.
387	10	For „Afrika“ read „Africa“.
417	18	Delete „Arabia Petraea“.
427	40	Adde „from“.
429	5	For „type“ read „locality“.
449	33	For „Arabian“ read „Arabia“.
498	28	For „te“ read „to“.
528	23	For „obteimed“ read „obtained“.
637	25	For „Flow.“ read „Flor.“.
663	33	For „O. stricta“ read „O. inermis“.
868	14	Adde 1218a. (11.) **Linaria acerbiana** Boiss. Flor. Or. IV (1879), p. 366. — Aschers.-Schweinf. Ill. Flor. d'Eg., p. 115 no. 776. — Linaria alsinefolia Benth. in DC. Prodrom. X, p. 269 partly. — An annual plant or often perennial, ashy-hirsute; stems branching

Page	Line from top	Description
		from the base, more or less prostrate, elongated. Leaves small, tapering into a short petiole, the lower-ones entire, ovate, obtuse, somewhat cordate, the upper ones mucronate. Flowers axillary, loosely and long spicate; calyx hirsute with small lanceolate acute lobes; corolla 5—6 mm long yellow with a acute somewhat incurved spure; capsule small, globose, glabrous, shorter than the calyx; seed minute, ovate, glandular-tubercled. — Flow. March to April **D. l.** Khor-el-Battaghah between Farshût and Mohammîd. — **D. a. sept.** Wady Abu Marwa. — **D. a. mer.** *Local name:* shedjeret-el-fâr (Schweinfurth). Only known from Egypt.
939	32	For „balsanina“ read „balsamina“.
1005	26	Adde 1390a. (11.) **Anthemis Ballii** Stapf in Kew Bull. (1907), p. 367. — An annual gracious small herb, 7 cm high, branching from the base; stems slender reddish in the lower part densely villous. Leaves linear or linear-lanceolate, acute, the upper ones entire, the lower ones 2—3-toothed or lobed, lobes ovate, mucronate, 5—7 mm long, 1,5—3 mm broad, thickish, villous. Peduncles gracious, not thickened at the apex, 1—1,5 cm long. Involucre lanate-villous; outer scales of the involucre ovate-lanceolate, acute, the inner ones gradually longer, obtuse. Receptacle elongate, conical, 2—3 mm long. Ligules white, elliptic-oblong, 8 mm long, female. Achenes pallid obovoid, rotundate at the apex, minutely umbonate, 8-costate. — Flow. March to May. **M. ma.** West of the fort of Mirsa Matruk (Dr. Ball.). Only known from Egypt.
1044	16	Adde 1457a. **Cnicus benedictus** L. Spec. Plant. I (1753), p. 626. — Rchbch. Ic., tab. XVII. — Boiss. Flor. Or. III, p. 705. — Carbenia Benedicta Bernh. System. Verz. Erf. (1800), p. 108. — Centaurea benedicta L. Spec. Plant., p. 1296. — An annual villous-lanuginous herb; stem short divaricately branched. Leaves pale greenish, somewhat coriaceous, oblong-lanceolate, sinuate-pinnatifid or -partite, segments triangular-oblong, spinulous-toothed, the basilar ones narrowed into a short petiole; the cauline ones stem-clasping and shortly decurrent; the floral ones broadly ovate-oblong longer than the heads, involucral-like. Heads ovate; scales of the involucre araneous broad coriaceous, narrowed into a long pinnate spine at the apex. Flowers yellow. Pappus longer than the achenes. — Flow. March to April. **M. p.** El-'Arîsh. Common in the Mediterranean region.
1071	20	For „ofter“ read „after“.
1071	25	Adde: In 1907 Otto Stapf published his: *„Additions to the Florula Marmarica“* in Kew Bulletin, p. 365—369. The term *„Marmarica“* is used in this interesting Memoir to cover the Egyptian littoral between Arab Bay and Bomba Bay, that is in the same sense as it is understood by Schweinfurth and Ascherson in their *„Primitiae Florae Marmaricae“* (Bull. Herb. Boiss. I, 1893).
1073	40	For „phytogeogravical“ read „phytogeographical“.
1232	32	For „cakher“ read „bakher“.

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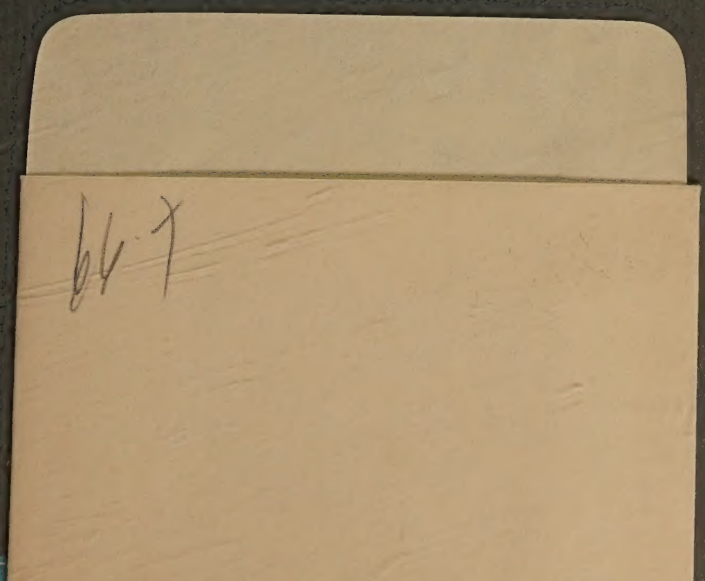

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